DOCUMENT RESUME

ED 331 215 EC 300 196

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TITLE Enhancing Interactions between Service Providers and Individuals Who Are Severely Multiply Disabled: Strategies for Developing Nonsymbolic Communication.
INSTITUTION Kansas Univ., Lawrence. Dept. of Special Education.
SPONS AGENCY Special Education Programs (ED/OSERS), Washington, DC.
PUB DATE 88
CONTRACT 300-83-0237
NOTE 116p.; For related documents, see EC 300 195-197.
PUB TYPE Guides - Non-Classroom Use (055) -- Information Analyses (070)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS Body Language; *Communication Skills; Eye Contact; Facial Expressions; Interaction; Interaction Process Analysis; Interpersonal Communication; Intervention; Language Acquisition; *Multiple Disabilities; *Nonverbal Communication; *Severe Disabilities; Skill Development; *Training Methods

ABSTRACT

The purpose of this manual, the culmination of a graduate project begun at the University of Kansas, is to assist individuals with severe, multiple disabilities and their service providers in learning to utilize nonsymbolic behaviors in an expanded, facilitative manner that leads to more consistent and predictable communication functioning. The manual presents an intervention approach using a philosophical orientation to the reciprocal nature of communication exchanges. This orientation emphasizes intervention at two levels: the service providers' perceptions and understanding of individual nonsymbolic repertoires, and the use of nonsymbolic expressions by the individual with severe multiple disabilities. Five instructional guidelines, along with the theoretical orientation and research support for each, are presented. The guidelines describe the following activities: developing nurturance, enhancing sensitivity, increasing opportunities, sequencing experiences, and utilizing movement. The guidelines are for service providers to use to accommodate the unconventional or limited auditory, visual, motor, and vocal displays of the individual who is nonsymbolic. Examples of the instructional guidelines are given, including communicative intents and functions with corresponding definitions displayed in table format. Subsequently, the instructional guidelines are incorporated into descriptions of reciprocal dialogues of adult-learner interactions. (Approximately 100 references.) (JDD)

ENHANCING INTERACTIONS BETWEEN SERVICE PROVIDERS AND INDIVIDUALS WHO ARE SEVERELY MULTIPLY DISABLED: STRATEGIES FOR DEVELOPING NON-SYMBOLIC COMMUNICATION

ENHANCING INTERACTIONS BETWEEN SERVICE PROVIDERS AND INDIVIDUALS WHO ARE SEVERELY MULTIPLY DISABLED:
Strategies For Developing Nonsymbolic Communication

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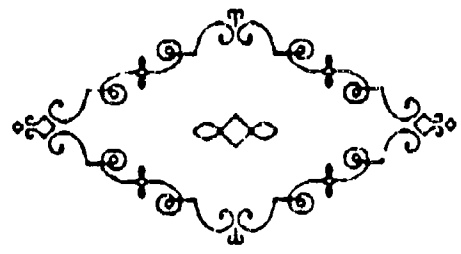

A refined and expanded version of this manual will be published in Spring, 1989 by Paul H Brookes Publishing Co , Inc., P O Box 10624, Baltimore, Maryland, 21285-0624.

This manual was developed under contract # 300 83-0237, Office of Special Education Programs, United States Department of Education The statements and material contained within do not necessarily reflect the position or policy of that office.

PREFACE

Perhaps no handicapping condition is as debilitating as the dual sensory impairment of deaf-blindness. All too often, young children with this type of condition have difficulty developing even rudimentary communication skills. This situation is further exacerbated by a relative absence of systematic research, assessment tools, and curricula expressly designed for persons with deaf-blindness. Fortunately, in recent years, the professional community has directed more attention to this population, and various research endeavors have been initiated to develop appropriate and useful materials.

One such effort is the Communication Skills Center for Young Children with Deaf-Blindness (CSC). This project was funded through a 5-year contract that was awarded in 1983 to the Teaching Research Division of the Oregon State System of Higher Education by the United States Office of Special Education and Rehabilitation. The overall goals of CSC were to develop, implement, evaluate, and disseminate communication interventions to increase the early communication and language competencies of young children (0 to 5 years) with deaf-blindness. Toward this end a multisite, consortium model was adopted. The CSC was administered through the Teaching Research Division and included as members the Portland, Oregon, Public Schools; University of Wisconsin-Madison, Waisman Center; St. Luke's Hospital, New York; and Utah State University, Exceptional Child Center. At each of these sites specific topics related to communication development in children with deaf-blindness were investigated.

This manuscript is only one of the products generated from the project. It is our hope that the document will be both interesting and helpful to the reader; and that, in some way, it will aid children with deaf-blindness.

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Communication Skills Center for
Young Children with Deaf-Blindness

This product was developed under contract #300-83-0237, Office of Special Education and Rehabilitative Services, U.S. Department of Education. The statements and materials contained herein do not necessarily reflect the position or policy of that office.

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ACKNOWLEDGEMENTS

This manual represents the culmination of a graduate project I began during my doctoral training at the University of Kansas. I extend my thanks to Christy Battle, June Downing, Barbara Ernst, Doug Guess and Bob Stillman each who contributed to the actual concepts and writing.

Also, thanks to the students at the University of Kansas and colleagues in the field who reviewed the manual and provided evaluative feedback; especially Christy Battle, Michael Bullis, June Downing, Linda Dyer, Lori Goetz, James Halle, Susan Hasazi Brody, Jeanne Johnson, Linda McCormick, Pat Mirenda, Charles (Cap) Peck, Caryn Robbins-Studyvin, Charity Rowland, Dick Sobsey, Robert Stillman, and Liz Vogt.

Special thanks to Karin Soper and Sue Johnson for their countless hours of editing and typing.

I appreciate all of you!

Ellin Siegel-Causey
Summer, 1988

Communication is the most efficient and organized method we have for transmitting information about ourselves, our world, and others. Relaying this information is necessary for all people to achieve a level of independence and to function effectively in the environment. Communication is essential to growth, enabling people to develop a degree of control and autonomy in their daily lives.

This goal of independence must be considered in all levels of communication and language intervention. Those individuals possessing a nonsymbolic repertoire must be allowed to experience effective control in their interactions in the environment. The quality of their nonsymbolic repertoire needs to incorporate a variety of understandable, functional messages. The intended receivers must be sensitive and responsive to these unconventional signals so that effective exchanges can occur.

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SECTION I

INTRODUCTION TO NONSYMBOLIC COMMUNICATION

Ellin Siegel-Causey

Statement of the Problem

Effective communicative exchanges between individuals with severe, multiple disabilities and service providers are essential for mutual understanding and quality interactions. *Communication** between these individuals may take a nonsymbolic** form which service providers must be aware of in order to effectively communicate with individuals with severe, multiple disabilities.

Instructional strategies have been developed to provide service providers (educators, paraprofessionals, therapists) with procedures for teaching numerous skills to individuals with severe disabilities. Communication skills training with these persons, however, continues to be a problematic area for research and intervention (Bullis, 1985, 1986, 1987, in press; Donnellan, Mirenda, Mesaros, & Fassbender, 1984; Hammer, 1982; Musslewhite & St. Louis, 1982; Peck & Schuler, in press; Reichle & Keogh, 1986; Stillman & Battle, 1986). The majority of literature on the development of communication/language focuses on the acquisition of verbal skills; however, *nonsymbolic* communication development is also critical for acquiring communicative skills.

*Words in italics are defined in the Glossary

**Authors note The authors have chosen to use the term nonsymbolic The usage of presymbolic or prelinguistic was avoided because these terms present a connotation of the inevitable transition and development of symbolic communication The authors of the manual recognize that some individuals with severe, multiple disabilities will not use symbols but will communicate in a nonsymbolic manner

Many individuals with severe, multiple disabilities do not use conventional *symbolic* systems (e.g. speaking, writing) to convey their messages. These individuals may communicate using alternative nonsymbolic modes such as gestures, vocal sounds, eye contact, body movements, and facial expressions. Some of these individuals are deliberate and purposeful (*intentional*) as they express themselves nonsymbolically and others are *nonintentional*, not understanding that their nonsymbolic expressions can communicate specific purposes and have deliberate effects. It is, therefore, essential that intervention efforts with these individuals focus on facilitating intentional communication at the nonsymbolic level.

It is not our intent to diminish the importance of symbolic communication. Excessive emphasis on symbol acquisition, however, might prevent service providers from recognizing and responding to the existing, nonsymbolic communicative abilities of an individual. Most service providers expect to observe and promote normal *language* acquisition in their clients. Service providers typically use spoken language (symbolic system) to communicate. It might be problematic therefore to adjust their *expressive* messages with individuals who have severe sensory, mental, and/or physical disabilities.

Nonsymbolic communication behaviors are common in all our lives. The infant cries when she needs to be fed. The teacher's glare quiets the classroom noise. The businessman extends his empty cup towards the person pouring coffee. These nonsymbolic behaviors are common, natural, and explicit means of communicating that may occur alone or in conjunction with symbolic communication. Effective communication incorporates a variety of modes. It is essential to provide individuals displaying severe disabilities with a range of

interchangeable, compatible communication modes, both to facilitate understanding and to provide a model for expressions.

This manual presents an intervention approach that is a philosophical orientation to the *reciprocal* nature of communication exchanges. This orientation emphasizes intervention at two levels:

1) the service providers' perceptions and understanding of individual nonsymbolic repertoires;

and

2) the use of nonsymbolic expressions by the individual with severe multiple disabilities.

Thus, this intervention approach recognizes that communication interactions are experienced mutually by the service provider and the learner and both individuals are reciprocally affected by the expressions of each other during each interaction.

Five instructional guidelines along with the theoretical orientation and research support for these guidelines are presented in Section 2. The guidelines are for service providers to use to accommodate the unconventional or limited auditory, visual, motor, and vocal displays of the individual who is nonsymbolic. Throughout Section 2, examples of the instructional guidelines are given. These examples include communicative intents and functions with corresponding definitions displayed in table format. In Section 3, the instructional guidelines are incorporated into descriptions of reciprocal dialogues of adult - learner interactions. The purpose for the manual and the instructional guidelines is that the service provider and the learner will learn to utilize nonsymbolic behaviors in an expanded, facilitory manner that leads to more consistent and predictable communication functioning.

Theoretical Orientation

It is important to distinguish between communication and language. Communication can be viewed as the transmission and reception of a message from one person to another. The message may be accomplished with symbols (spoken words, sign language, picture symbols, Blissymbols) or without symbols (facial expression, body movement, gesture). Language is viewed as a form of communication that uses a learned, rule based, abstract symbol system. The focus of this manual is on the development and refinement of nonsymbolic receptive and expressive skills for both: service providers (educators, paraprofessionals, therapists) and individuals with severe disabilities to help them both to improve their communicative interactions. This focus on improving the use of nonsymbolic communication by both the service providers and the learner with severe disabilities is intended to facilitate the dynamic, interactive nature of communication. This emphasis is based partially on the assumption that effective communicators use a variety of modes to transmit messages. Restricting communication intervention to only nonsymbolic or only symbolic modes may not benefit acquisition of effective communication skills.

It is suggested in this manual, therefore, that service providers expand their personal use of nonsymbolic expressions combined with their symbolic expressions. The instructional guidelines provide examples of how service providers can combine their symbolic and nonsymbolic expressions. In addition, the manual guides service providers to help learners with severe disabilities to enhance their communicative understanding (*reception*) of the nonsymbolic behaviors that others use and to expand their own use (expression) of nonsymbolic behaviors. An overview of this dual, reciprocal nature of expression and reception of communication is displayed in Figure 1.

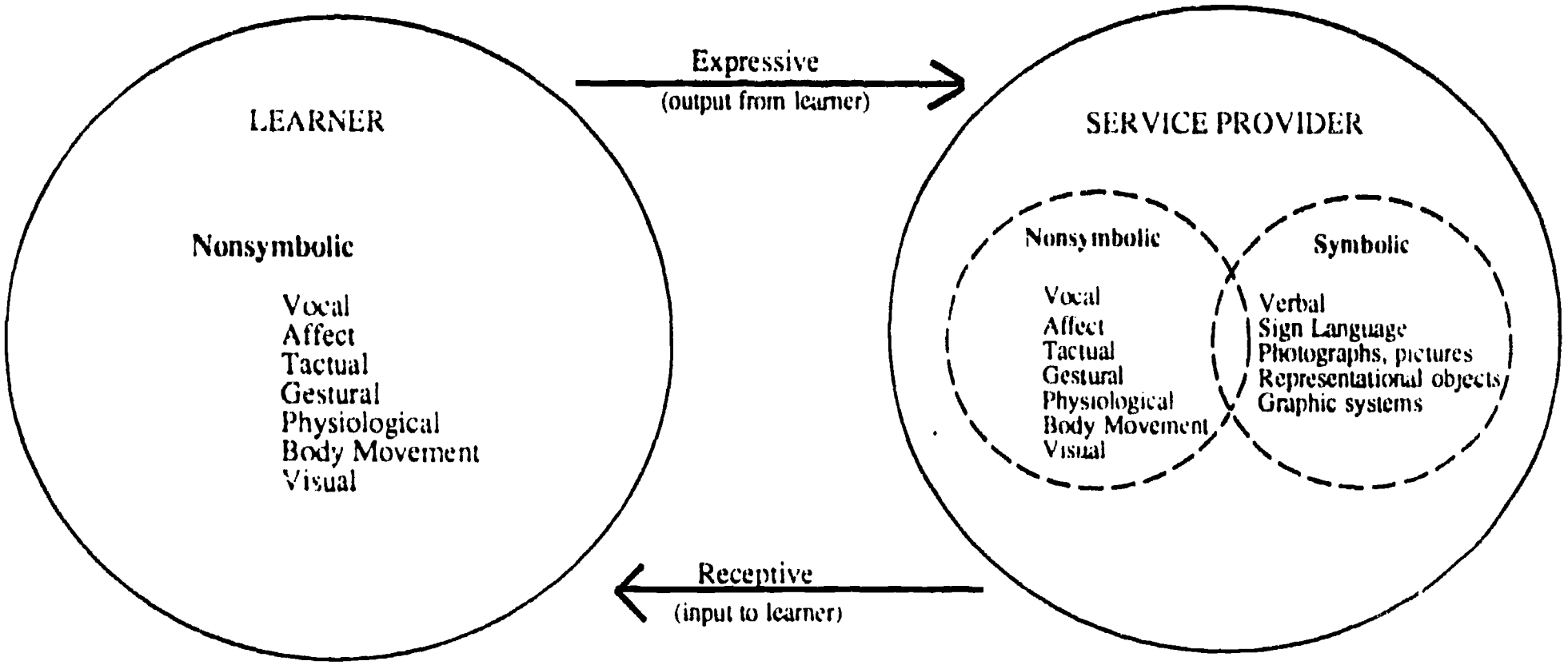

Figure 1. Dual, reciprocal nature of communication interactions that involves nonsymbolic expressions from the learner and both nonsymbolic with symbolic expressions from the service provider.

The model of intervention presented in this manual, as previously stated, assumes that service providers will combine their use of symbolic communication with nonsymbolic communication. The instructional guidelines presented, however, focus on the use of nonsymbolic *receptive* and *expressive* messages by the service provider and the learner. The symbolic systems used by service providers such as speech, sign language, and representational objects provide information (receptive input) to learners through their auditory, visual, visual/tactile modes. The nonsymbolic systems used by service providers such as laughter, facial expression, and physical prompts provide information (receptive input) to the learners through their auditory, visual, tactile, and kinesthetic modes. In addition, learners will provide information (expressive output) nonsymbolically to the service provider using similar auditory, visual, tactile, and kinesthetic modes. Table 1 depicts these receptive and expressive components of the nonsymbolic and symbolic usage of the learner and service provider. Examples and definitions of these behaviors are also provided. Recognition of these modes of communication may assist service providers to recognize and better utilize these natural communicative abilities of all individuals that are present regardless of impairments or lack of symbolic (expression) skills.

Table 1
Receptive and Expressive Communication Modes of Nonsymbolic and Symbolic Systems

SYMBOLIC SYSTEMS*		NONSYMBOLIC SYSTEMS**		
Receptive input from Service Provider		Expressive and Receptive Communication of Learner		
Mode	**Form of Input**	**Mode**	**Form of Input and Output**	**Examples**
Auditory	Verbal	Auditory	Vocal	crying, grunting, laughing, pleasure/displeasure sounds
Visual	Sign language, photographs, pictures, graphic systems	Visual	Affect	gaze, facial expression
			Gestural	outstretched arms, head nod
			Physiological	alertness
Visual/Tactual	Representational objects	Tactual	Tactual	affection, physical contact
		Kinesthetic	Body movement	sway, jump, lean

*SYMBOLIC

Verbal - Using words
Sign language - Using system of hand and arm gestures
Photographs and pictures - Using visual representation or image
Representational objects - Using miniature objects to depict real objects or activity; using portions of a real object to depict a real object or activity.
Graphic system - Using a method of symbols such as Blissymbolics, Rhebus pictures, or PicSyms.

**NONSYMBOLIC

Vocal - Using sounds and utterances produced by voice
Affect - Displaying a feeling or emotion
Tactual - Using touch (stimulation of passive skin receptors and active manipulation and exploration)
Body movement - General motion of body such as leaning, pulling away, or swaying
Gestural - Using movement of the limbs or parts of body
Physiological - Displaying functions of body such as alertness or muscle tone
Visual - Using sense of sight

Processes of nonsymbolic Behavior and Communicative Functions

Harding (1983) provided a description of the development of nonsymbolic communication within the context of interactions between mothers and infants. The sequence suggested is one that has been incorporated into the guidelines of this manual:

Child Behaviors	Adult Behaviors
1. Child acts (cries, moves a limb, smiles, closes eyes, looks at something, calms or quiets)	
	2. Communicative effect Adult reacts to child's behaviors
3. Child's behaviors appear more goal directed (leaning toward, pushing away, smiling, crying)	
	4. Communicative inference Adult infers that child's behaviors are communicative or just decides to assign a meaning to the behaviors and aids the child in achieving what he/she wants (the adult interprets what the child "means")
5. Intentional communication Child begins to recognize causal events and agents and combines behaviors (reaching, leaning) with directed attention (eye gaze, head turn) toward the adult, or child persists in emitting a particular behavior or uses alternative eye gaze.	
	6. Adult responds to intentional communication and may require more behaviors and better quality of behaviors before responding

[note adapted from Harding (1983) pg. 95]

The guidelines presented in this manual (Section 2 & 3) are intended to encourage service providers to respond to the child's nonsymbolic behaviors by noticing and reacting (communicative effect) and by later inferring what the nonsymbolic message is (assigning intent) and responding to it (communicative inference). The goal is for children to learn that their unique repertoire of nonsymbolic behaviors can serve a variety of functions or purposes (pragmatics) and elicit specific behaviors from other people. The service providers may need to learn to display (a) awareness of the learner's nonsymbolic behaviors, (b) to learn to respond contingently and in a meaningful manner within the context of each interaction. These behaviors should be viewed as the service provider's initial steps in eliciting the learner's attention and engagement in interactions. This initial emphasis is intended to help learners to discover that human partners are positive, rewarding people to interact with and to learn that social interactions and exchanging information can occur between themselves and others in varied social contexts. This manual provides a theoretical orientation and philosophy through the use of five instructional guidelines rather than a sequential, hierarchical step-by-step approach for delivering instruction.

The communication functions described in this manual were derived from a synthesis of relevant literature in infant-caregiver development interactions (Bates, Camaioni, & Volterra, 1975; Harding, 1983) and interactions between adults and children with severe disabilities (Donnellan et al., 1984; Musslewhite, 1986; Stillman & Battle, 1986; Stremel-Campbell, Clark-Guida, & Johnson-Dorn, 1984). These functions are natural components in the development of symbolic exchanges (Carter, 1975; Dore, 1974; Halliday, 1975; Mcerk, 1977) but require direct intervention to be utilized effectively and in a broad manner during nonsymbolic exchanges with learners who are disabled. All

messages can serve a specific purpose (communicative function) within the particular context of the interaction. The effectiveness of a communication or language system is based upon our ability to relay the purposes or functions that our messages are intended to convey. Nonsymbolic behaviors expressed in consistent contexts and interpreted in a consistent manner during early acquisition may influence later language development (Golinkoff, 1983; Moerk, 1977; Yoder & Reichle, 1977). It is imperative, therefore, to teach an array of communicative behaviors that can likely serve a variety of functions for a person who utilizes nonsymbolic expressions. In addition, service providers should make every effort to determine the intended meanings of the nonsymbolic behaviors that are expressed by the learner.

The communicative functions that language (symbolic) users can convey include the broad categories of requesting, providing information, regulating, and responding (Stillman & Battle, 1986). The communicative functions of the nonsymbolic user who may be nonintentional or may have limited intentional communication are represented by the categories of displaying interest, continuing, repeating, terminating, responding to cues, and initiating (Stillman & Battle, 19[illegible]). As one aspect of their research, Stillman and Battle (1986a, 1986b, 1986d), have developed procedures to assist teachers to examine their communicative behaviors during interactions with students who are severely handicapped. In recent research, Stillman and Battle, (1986b), videotaped interactions between teachers and students and reviewed jointly the interactions by using the Categories of communicative intentions (Stillman & Battle, 1986a, 1986b) with the teacher. The outcomes of these coding procedures was to help the teachers better understand the communicative acts their students are exposed to and to provide a basis for the teacher to consider the effectiveness of their personal interactive approach.

The coding system for intentions of communicative expressions (Stillman & Battle, 1986a, 1986d) were used as a basis to organize the communicative functions used in this manual in Table 2 and in the examples in Section 2. The reader should consult the work of Stillman and Battle (1986a, 1986b, 1986d) for a thorough description of these systems. The codes were selected for use in this manual for several reasons:

1. To help service providers recognize the large scope of communicative functions that their behaviors can convey.

2. To help service providers to recognize the need to be explicit in their interactions in order to provide receptive input to the learner that relays information that is intended.

Table 2
Communicative Functions of Symbolic and Nonsymbolic Users

(Symbolic) Users	Nonsymbolic Users
REQUESTS: - Request action - Request attention - Request for interaction - Request imitation - Request for communication (specific expression) - Request information (choice, more) PROVIDE INFORMATION: Describe - Describe learner's/other's actions - Describe learner's/other's attributes - Describe learner's/other's feelings/perceptions - Describe object actions - Describe object property/function/location Inform: - Inform of termination Instruct: - Instruct in communicating - Instruct in performing action - Correct Social Procedures: - Communicative conventions - Comfort - Entertain - Comment RESPONSE TO COMMUNICATIONS: - Response affirm/comply - Response, describe learner's communication - Response, request clarification - Response negate/refuse REGULATORS: - Encourage behaviors - Discourage behaviors directly/indirectly	Interest:[A] - Notice - Show interest - Explore Continue: [requests made primarily during routines and well-practiced sequences while object, activity, or person is present] - Request action, person - Request object, food - Request attention, affection Repeat: [requests made to repeat previous action or activity not included in well-practiced sequences] - More object, food - More action, person - More attention, affection Terminate: - Protest/reject - Refuse Respond to cue: - Affirmation, negation - Greet - Requests of any kind Initiate: - Comment - Offer - Attention

Note: [A]Downey (1986), all other categories taken from Stillman & Battle (1986 a, b, d).

The importance of effective social skills that incorporates providing the learner with a means of conveying communicative functions and the attention to the learners nonsymbolic, prelanguage behaviors is documented by Gaylord-Ross, Stremel-Campbell, & Storey (1986):

> In order for more effective social skills to occur, the individual must have the means to communicate different social functions (greeting, requesting, calling, requesting answer, commenting); the partner must attend to the prelanguage behaviors that the individual may need to use to engage in different social functions; and the partner may need to use additional nonverbal cues that serve as discriminative stimuli for different social behaviors. (p. 166)

Two examples of utilizing communicative functions with attention to nonsymbolic behaviors are provided in Figure 2 and 3. These communicative functions are exemplified in the instructional guidelines using a dialogue format presented in the third section of this manual.

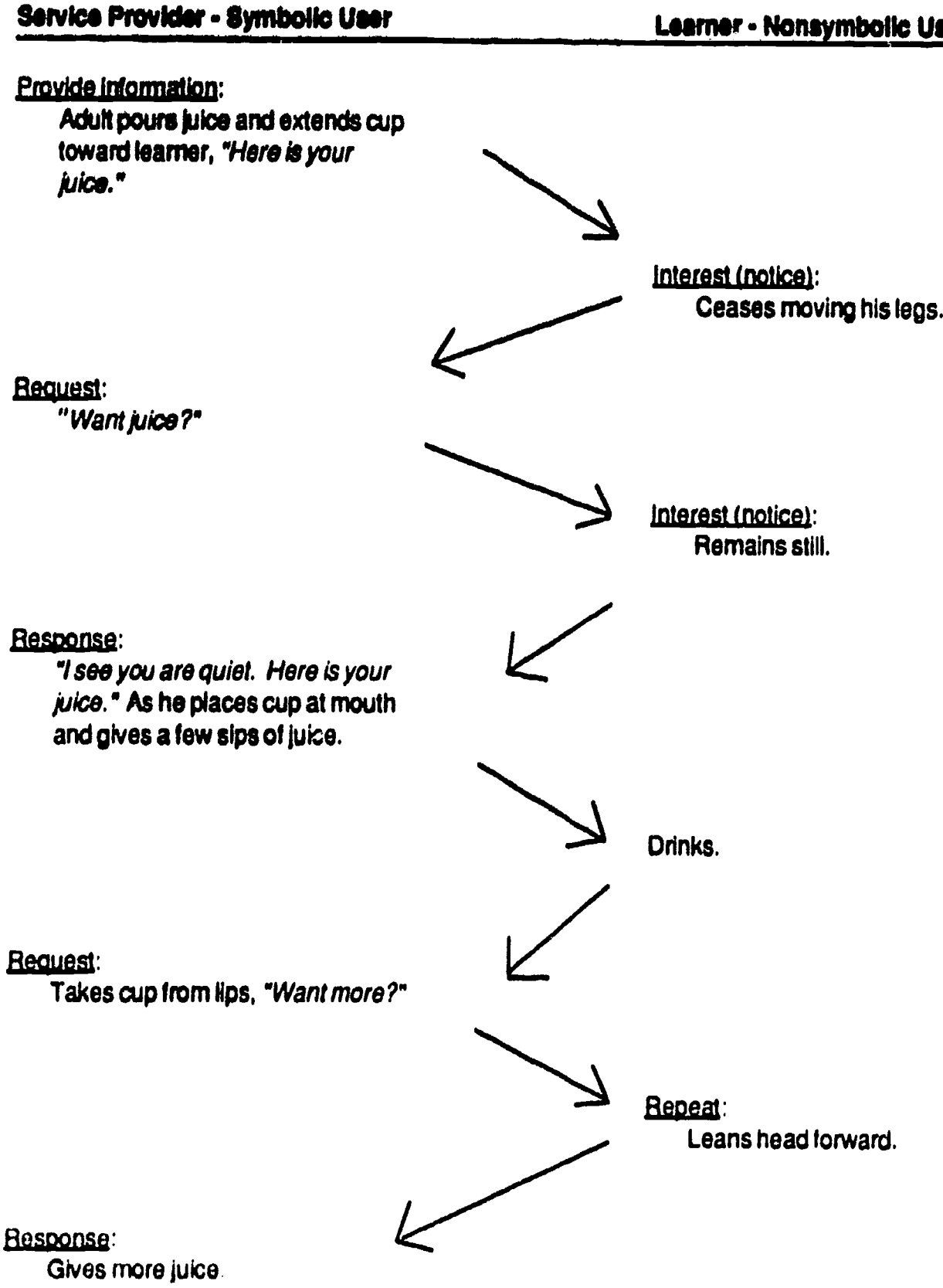

Figure 2. Identification of communictive functions as the symbolic user and nonsymbolic user reciprocally exchange information during snack time.

Service Provider - Symbolic User **Learner - Nonsymbolic User**

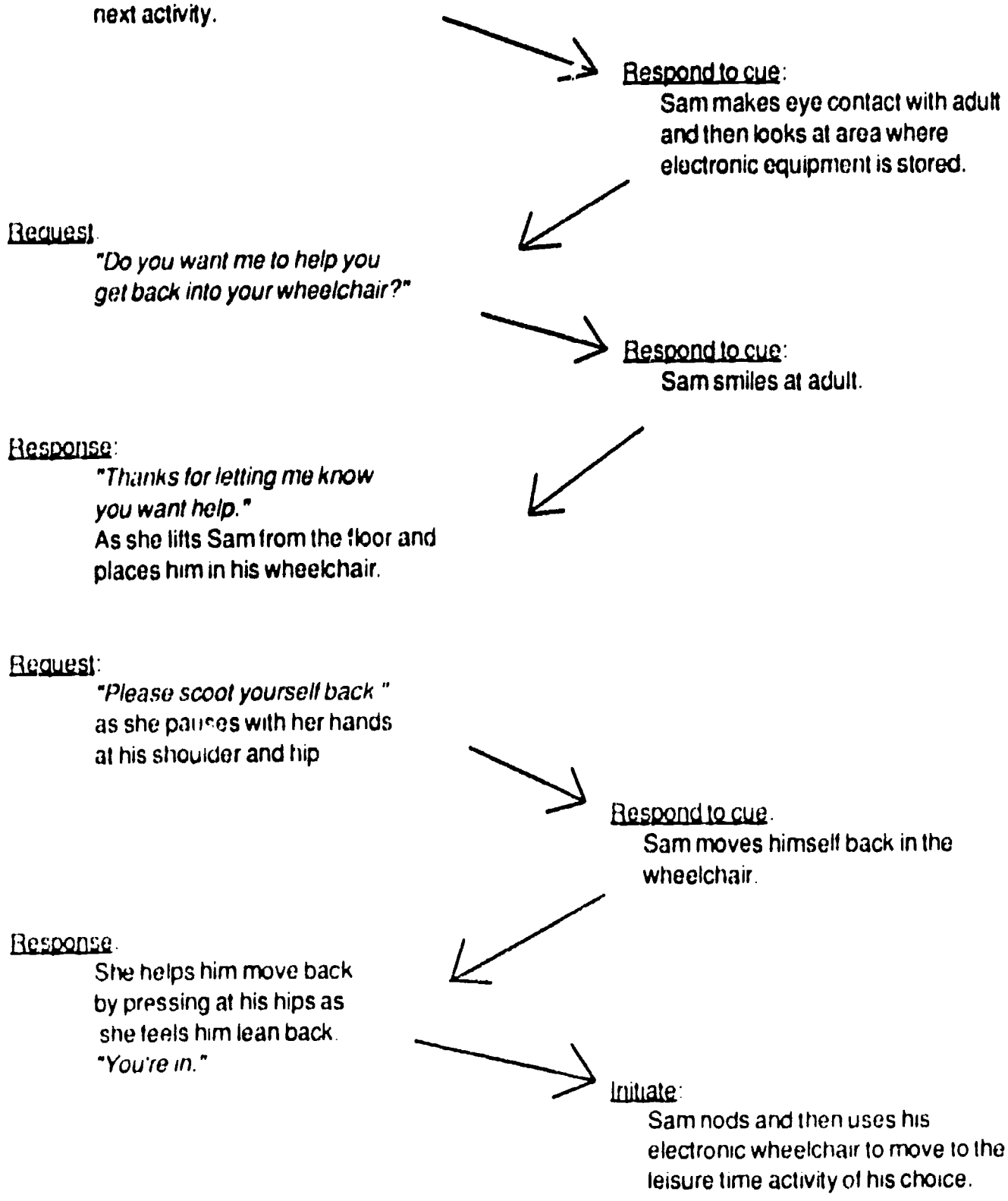

Figure 3 Identification of communicative functions as the symbolic user and nonsymbolic user reciprocally exchange information during a transition to a new activity.

Philosophical Orientation to Nonsymbolic Communication

Interactions with a partner who uses only nonsymbolic communication modes require the listener to interpret or assign meaning to the message and then respond in a communicative manner. Ineffective interaction (breakdown in communication) occurs frequently when a nondisabled person fails to recognize and consistently respond to the nonsymbolic expressions of a person with disabilities. When there is a breakdown of communication, the proper focus of intervention efforts is enhancing the receptive and expressive abilities of both participants within the interactive processes, rather than on simply altering the limited repertoire of the individual with disabilities. The manual incorporates an interactional model (Bloom & Lahey, 1978; Schlesinger, 1977) that emphasizes the dual role of cognitive development and the learner's experiences that interact and facilitate communication and language acquisition (McCormick & Schiefelbusch, 1984). The three dimensional system of content, form, and use (Bloom & Lahey, 1978) was utilized as a frame of reference for extending intervention to nonsymbolic behaviors as well as incorporating the pragmatic perspective (Bruner, 1975; Bates, 1976) that emphasizes social development and early child caregiver interactions that facilitate communication learning.

The instructional guidelines described in this manual aim at increasing the nonsymbolic behaviors of service providers in interactions with individuals with disabilities. The assumption is that intervention should focus on the service providers to have a positive effect on the dynamic nature of nonsymbolic communicative exchanges and enhance the nonsymbolic skills of the individual with disabilities. All communicative interventions suggested in this manual should:

1) Utilize natural social interactions that are part of a daily schedule for a specific individual;

2) Utilize materials that are age-appropriate, functional, and meaningful for the individual;

3) Utilize functional settings with nondisabled peers;

4) Compensate for auditory and visual loss through alternative sensory input (tactile, kinesthetic, olfactory, vibratory)

(Siegel-Causey & Downing, 1987)

Instructional Guidelines

Social interactions play a significant role in communication development (Bates, Benigni, Bretherton, Camaioni, & Volterra, 1979; Bruner, 1975; Halliday, 1975). Intervention should occur frequently during dynamic and meaningful exchanges and may require considerable effort on the part of the service provider. Intervention must focus on developing the service provider's personal skills that accommodate the unconventional or limited auditory, visual, motor, and vocal displays of the nonsymbolic individual. Five general instructional guidelines have been identified for service providers to use as they interact with individuals who are nonsymbolic:

1) Develop a nurturant relationship;
2) Enhance sensitivity to all nonsymbolic communication attempts;
3) Increase opportunities for communication;
4) Sequence experiences in a predictable, ordered format;
5) Utilize movement as a part of natural interactions.

The next section provides an overview of these guidelines with a review of the theoretical and research support for them.

✣

SECTION 2

THEORETICAL ORIENTATION AND RESEARCH IN NONSYMBOLIC DEVELOPMENT

Barbara Ernst & Ellin Siegel-Causey

Part 1: Implementation Considerations

This section provides a review of relevant literature found in: a) infant communication theory and research; and b) special education theory and research. These two sources provided the foundation for determining the content and implementation of the five instructional guidelines that are the basis of this curriculum. The support for the use of the guidelines is derived from literature that verifies the components of the guidelines and are primarily based from extensive literature reviews conducted for four years (Siegel-Causey & Guess, 1985; Siegel-Causey, Sims, Ernst, & Guess, 1986; Siegel-Causey, Ernst, & Guess, 1987; Siegel-Causey, Ernst, & Guess, in press).

There are two components of this curriculum, natural context and functionality, that should be addressed during all communication instruction.

Using Natural Context in Communication Intervention

The *natural context* of everyday life sets the stage for interaction, providing many opportunities and reasons to communicate. Natural contexts occur in any daily setting--leisure, domestic, or vocational--providing a continual learning environment for the learner with severe disabilities. Additionally, the people involved in the natural environment (e.g., family, paraprofessionals, and teachers) are an integral part of the individual's life and, therefore, are familiar and knowledgeable partners. This familiarity enables them to provide a comfortable, relaxed atmosphere for the learner that can encourage communicative interactions. Communication training can be incorporated by

capitalizing on the spontaneous interactions that occur within a natural context. Using the naturally occurring opportunities of daily life provides a "common sense" framework to address communicative behaviors that may be more meaningful and relevant to the individual than traditional instructional contexts.

In many instructional settings, speech therapists, occupational therapists, and physical therapists have their individual period of time to work on specific skills which may not be used by the individual in any other environment. In fact, rarely do these skills, mastered during systematic, structured settings, appear appropriately in an individual's spontaneous behavior in natural settings (Anderson & Spradlin, 1980; Liberty, Harding, & Martin, 1981; Rogers-Warren, & Warren, 1985; Writer, 1987). A variety of skills can be targeted within the learner's day by taking advantage of existing activities and interactions. Learning may be enhanced when instruction occurs in the actual place where the skill is needed and involves the use of real materials. For example, a physical therapist can work in the classroom and accompany the child during daily routines, such as preparing for recess--moving to the coat area, putting on a coat, going outside, and participating with the child at recess. The physical therapist can be incorporating therapy goals such as weight shifting, balance, and bilateral hand use within the context of these natural events. An added benefit is that the physical therapist can also incorporate spontaneous communication opportunities as the therapy session unfolds in a natural manner.

Intervention situations that are arranged precisely for the purpose of teaching specific communication skills may lose some of the learner's natural interest and spontaneity of the moment. Artificial teaching situations may result in a parroting of communicative behaviors that may be inappropriate or rarely used in the individual's daily life. In addition, the adult may be overly concerned with a specific response in the structured training session, inhibiting the individual's other spontaneous communicative demonstrations. In fact, it has been found that instructional staff generally respond at

extremely low rates to behavior initiated during a formal instruction period by children with severe handicaps (Houghton, Bronicki, & Guess, 1987). Shifting instruction away from the isolated and tightly controlled session towards the use of an environment with naturally occurring cues removes the emphasis from a direct training mode and may decrease adult directiveness and prompting.

Natural settings in schools

Instructional personnel in school settings can encourage natural, spontaneous communicative opportunities to occur in the structured classroom. Essentially school is a natural environment where the student spends six hours a day. The use of spontaneous social interactions outside of the carefully programmed instructional schedule can be both practical and immediately relevant to the learner with severe handicaps. Although the school setting is restricted to the constraints of a predetermined schedule and structured environment, materials and activities can be arranged in a way to prompt occasions for communicative interactions to occur in an "ordinary, everyday" manner.

The usefulness of everyday surroundings to facilitate communication may be considered during recess, lunch, vocational, and recreational periods, while promoting other skills. These activities may occur in an integrated setting with nondisabled children, thus providing more communicative possibilities.

Example of Natural Context in an Integrated School Setting

Johnny, who experiences severe multiple handicaps, is going on a field trip with his classroom and another classroom of students without disabilities. The purpose of the field trip is to collect leaves for a fall art project. During their browsing through a neighboring field, Johnny approaches Anthony, a boy without disabilities, reaching toward him vocalizing, and displaying a large leaf he has just found [**communicative function** = *initiate: comment*]. Anthony looks surprised and

says, "Wow, Johnny, where'd you get that one?" [**communicative function** = *respond: request clarification*] Johnny smiles broadly and looks around toward a big tree, nodding and moving his body excitedly [**communicative function** = *respond to cue*]. Anthony and Johnny walk to the tree with the big leaves and together begin scouting around for more leaves.

Spontaneous occurrences during any school activity may be used to incorporate the teaching of a communicative skill, capturing the learner's attention more readily than a pre-determined, directive strategy Additionally, the learner may be more motivated and interested since the instruction is directly related to an ongoing, meaningful activity. Ideally, communicative skills can be practiced in all settings during the day regardless of the scheduled activity.

Example of Using Natural Setting

The natural environment supplies a number of different settings that may be used to encourage a child who is learning a new communicative skill. For example, if Billy is learning to express that he wants more, he may discover that by reaching, vocalizing, and pointing at the object of desire, he may evoke a helpful response from others. The teacher can indirectly prompt the use of this new skill in a number of natural settings.

During snack time, the teacher may pour half a glass of juice to give Billy an opportunity to ask for more. Billy may vocalize or point at the empty cup [**communicative function** = *continue: request action*]. During a play session, the teacher may watch Billy play with a new wind-up toy and not respond immediately when the toy has stopped moving [**communicative function** = *request solicit action*]. She may wait for Billy to motion to her and express his desire for the toy to go again. At recess, when the teacher is pushing Billy in a swing, she can begin to push someone else and wait until Billy's swing comes to a stop or until he calls out to her to start his swing again [**communicative function** = *request solicit action*]

Opportunities to learn appropriate skills and communication strategies can be expanded to vocational, recreational, and other community settings. If individuals with

severe disabilities enjoy these experiences they may have further incentive to interact and to learn new skills.

In summary, it is important to integrate natural, everyday events into communication training programs for the individual with severe disabilities. Spontaneous communication exchanges can occur across a variety of settings and may greatly enhance the learner's communication skills. By being aware of the importance of a noninstructional atmosphere in the context of daily activities, more meaningful and appropriate interactions may arise.

Incorporating Functionality into Communication Intervention

It is important to remember that the goal of all intervention programs is to prepare individuals to function more effectively and independently. Behaviors targeted should be relevant to current living or school settings, incorporating a natural, common sense approach. Individuals with severe disabilities who may have difficulty in generalizing skills across different domains benefit from learning functional skills in natural contexts. Creating a learning situation that is directly applicable to the individual's daily life may promote communicative learning that is extremely practical for the individual with severe disabilities (Halle, 1982; Mulligan, Guess, Holvoet, & Brown, 1980).

Relevant and practical skills can be taught to the learner with severe handicaps by taking advantage of existing activities and interactions in the individual's day. For example, communicative opportunities can be incorporated into the learning of functional skills such as self care and other relevant activities. Using regularly recurring events of daily life provides a familiar framework to address functional communicative behaviors. When skills are programmed for daily use there may be a natural propensity for the child to retain the

skills. "Forgetting is generally a sign of disuse or irrelevancy" (Touchette & Schwartz, 1975, p. 12). Appropriate communication strategies will be relevant to the individual repertoires of children and for the world in which they actually function.

Functionality, as applied to communication, is based on the individual's communication expressions that can be immediately usable. Selection of functional nonsymbolic skills must be based on the individual's needs and characteristics, and the characteristics of the social and physical environments. The functionality of the targeted nonsymbolic skill should be analyzed by the response of the persons in the interactions and by the physical reactions in the environment. Kaiser, Alpert, & Warren (1987) suggest three steps to increase functional communication training.

1) Select forms known to be functional in particular settings frequented by the child. This requires "noting the type of interactions they engage in and the communication required to participate in those interactions" (Kaiser et al., 1987, pp. 249).

2) Teach the child to use the forms selected in a functional manner by also training specific intentions. This requires considering opportunities for displaying intentions such as greeting, making choices, or requesting.

3) Respond to the child's forms in a functional manner. Meaning is thus derived from the consequence of the attempted communication. This may require adults to be "responsive to a student's emerging communication skills" (Kaiser, Alpert, & Warren, 1987, p. 249) and thus means that the child's expressions are attended and responded to.

Natural motivation for communication

A natural motivation exists for children to increase communication attempts when they observe that their behaviors can have a direct effect on the immediate environment.

For an individual who is learning what communication can do, receiving an object specifically desired and requested can be a very satisfying event. The every day setting is ideal for this experience since the environment (found at home, school, and outdoors) is full of objects that may be of interest. Strategies that incorporate this response-specific aspect, enabling individuals to observe direct cause and effect, will promote the learner's awareness of the usefulness of communication. Communicative behaviors are more readily learned and retained if this high motivational factor is present. Through the integration of functionality, individuals with severe disabilities may learn that communication is a useful tool that can help them in their daily life.

Example of Using the Natural Appeal of the Environment

> Isaac, a twelve month old child with retardation and mild cerebral palsy, sees a bright colored ball roll under the sofa after the dog drops it. He motions towards the sofa, and attempts to crawl while he is grunting and struggling [**communicative function** = *continue: request object*], intent on getting the ball. His father, seeing his interest says, "Do you want this, Isaac?" [**communicative function** = *response: request clarification and request: solicit response*] and reaches under the sofa to pull out the ball. Isaac sits up, wide-eyed and reaches for the ball [**communicative response** = *interest*]. "Are you sure you want it?" his father teases [**communicative function** = *request: solicit response*]. Isaac reaches and smiles as he attempts to grab the ball [**communicative function** = *respond to cue: affirmation*]. "Ok, ok, here it is." His father smiles broadly and places the ball in Isaac's hands [**communicative function** = *response: comply*].

Part 2: Instructional Guidelines

The next sections provide a review of five instructional guidelines important to the development of nonsymbolic communication:

1) Developing *nurturance* *

2) Enhancing *sensitivity* *

3) Increasing *opportunities* *

4) *Sequencing* experiences *

5) Utilizing *movement* *

These guidelines are not sequential in nature but it is intended that the service provider incorporate all relevant components of the five guidelines during any communicative interaction. Figure 4 displays visually the interrelated nature of the guidelines that form the overall philosophical orientation of the curriculum.

The forthcoming review provides the reader with support from literature on infant communication development and from literature in special education as the basis for utilizing the instructional guidelines. Included are descriptions of each guideline, and examples of interactions that incorporate the guidelines components are also presented. In the examples of the intervention guidelines, the communicative functions are marked by the use of brackets (refer to Table 2 in previous section).

* Refer to glossary for definitions

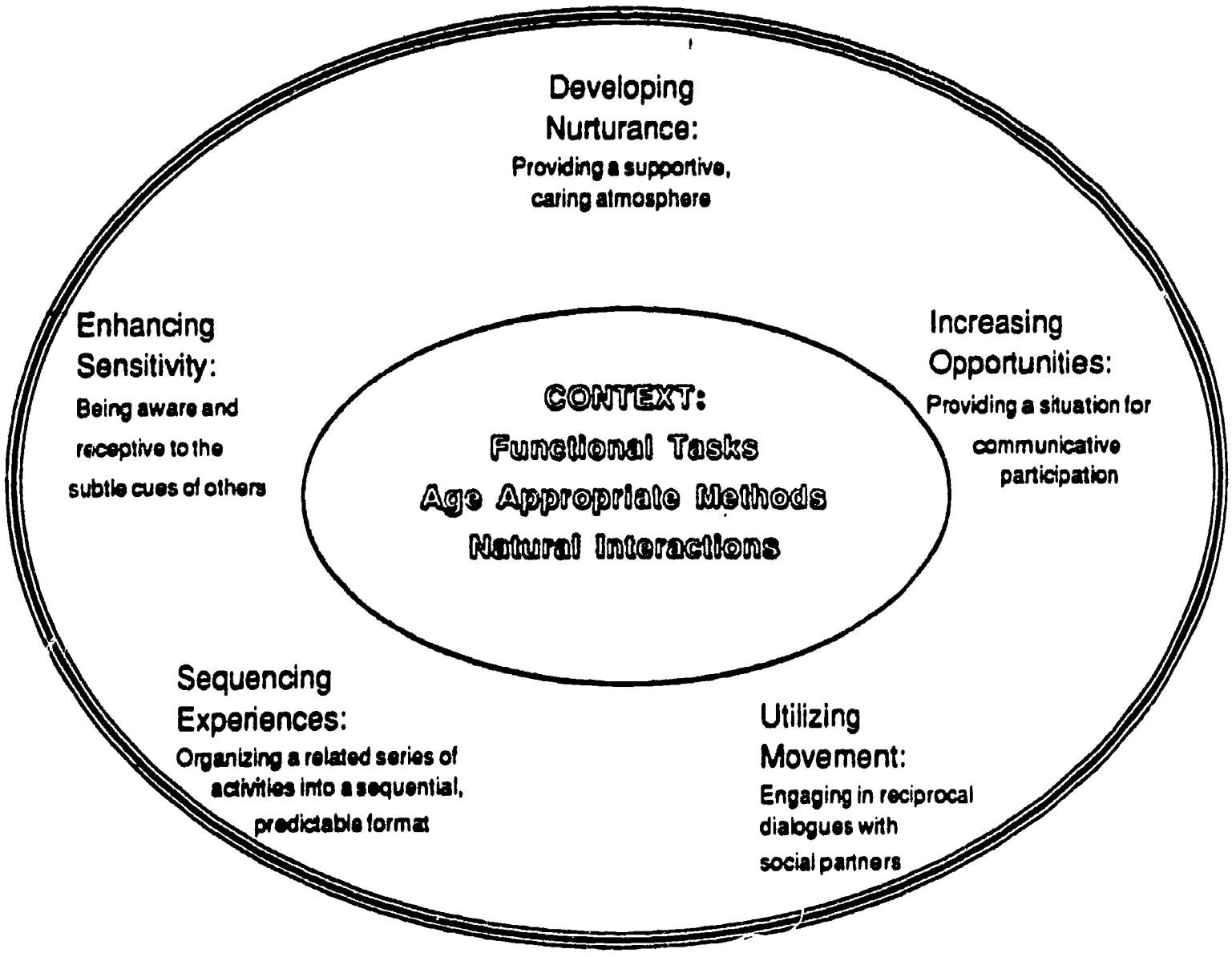

Figure 4. A display of five instructional guidelines in relation to the context in which nonsymbolic communication can be facilitated for learners with severe disabilities.

Developing Nurturance

Nurturance:

Providing a supportive atmosphere through the development of a warm and trusting relationship.

Role in communication:

Nurturance helps to create a positive relationship that promotes interest in communicative interactions and ensures a willingness to participate in social exchanges.

Role in caregiver-infant literature:

The nurturance that caregivers provide infants establishes a positive communicative rapport, promoting the development of communication.

Role in nonsymbolic communication of individual with severe disabilities:

The service provider who creates a nurturant atmosphere for the individual with severe disabilities helps to establish the individual's interest in other people and in communicative exchanges.

The basic concept of nurturance suggests a relationship between two persons founded on security, warmth, and mutual trust. Several authors have suggested that the nurturant relationship between infants and their primary caregivers supports and promotes early preverbal, nonsymbolic communication (Bruner, 1977; Newson, 1977; Odom, 1983; Schiefelbusch, 1984). The nurturant caregiver establishes a sensitive relationship with the child that might aid the development of communication at a nonsymbolic level. When caregivers provide an atmosphere of warmth and security, and respond positively to the child's communicative behaviors, a relationship built on trust and confidence develops between them (Stillman & Battle, 1984; Writer, 1987).

The nurturance that caregivers provide the child is essential in building a foundation for future communicative exchanges. Developing a nurturant relationship with children who have severe handicaps is also important for their future development. Children who

receive warmth and attention from their service provider may naturally feel more trusting and comfortable within their environment. This, in turn, fosters a positive feeling in children that may promote interest in further exchanges with those around them. The following section will examine how the caregiver of the infant without disabilities exhibits nurturant behaviors, thereby developing a trusting, warm bond. It will also consider how this feature may be relevant to the development of a nurturant atmosphere within the classroom for individuals with severe handicaps.

Caregivers' Nurturant Behaviors

In the caregiver-infant relationship, the primary caregiver fosters nurturance by providing the infant with a secure environment and by developing a warm, affectionate bond. Caregivers will use many different gestural, vocal, and tactual behaviors to demonstrate their care and concern when interacting with infants. For example, the caregiver's eye gaze often follows the direction of the infants' eye gaze, so that, when the infant looks at the caregiver, eye contact is established. This reciprocal eye contact is seen as an important part of emotional bonding (Stern, 1977). Caregivers also use very animated facial expressions, such as big smiles and wide eyes to display their enjoyment and satisfaction with the infant. These expressions serve to capture the infant's attention and also instill positive feelings in both members of the dyad. In addition, caregivers use a special form of speech known as "motherese" or "baby talk". This unique speech pattern is the adult's way of adjusting speech to facilitate the infant's comprehension in an affectionate and nurturant manner. This style is characterized by an emotional warmth of intonation, combined with a simplification of speech forms for communicative clarity and the use of affectionate words (Bakeman & Brown, 1977, Levin, Snow & Lee, 1984; Walker, Levine & Grasse, 1982).

Example of Nurturance

Jimmy's mother is swinging him in a hammock, playfully cooing, "ooh, weee" in time with the motion of the hammock. As he swings near her, she leans over and kisses him quickly [**communicative function** = *provide information*] before the hammock swings back the other way. In a sing-song manner, she talks to him saying, "Swinging, you are swinging, sweetheart" and caresses his head from time to time [**communicative function** = *provide information*]. Jimmy giggles and coos in delight [**communicative function** = *show interest*], appreciating all the warmth and affection.

Caregiver Nurturance in Daily Activities

There are continual opportunities for affectionate interchanges to occur during the first year of life as the bond between caregivers and infant develops. To a large extent these exchanges occur as an indirect consequence of the physical care needed to keep an infant alive and well (Newson, 1977). The daily activities of diapering, feeding, and bathing provide many natural opportunities for warm social interaction to occur between infant and caregiver. While attending to the infant's physical needs, the caregiver has an excellent opportunity to express nurturant, caring behaviors.

Example of Caregiver Nurturance in Daily Activities

While changing Amy's diapers, Carol focuses on Amy s gaze and remains attentive to any noise or gesture that Amy makes. When Amy leans towards the bathroom shelf and vocalizes [**communicative function** = *show interest*]; Carol is quick to respond [**communicative function** = *response:affirm*], bringing down a small stuffed animal that Amy enjoys.

The caregiver creates a supportive environment by responding sensitively and dependably to both the infant's social and physical needs. These repeated events that are necessary to daily life provide a familiar, reliable framework for the infant. During these times, infants become familiar with the caregiver's unique way of speaking, playing, and responding to them. The regularity experienced within these recurring daily activities

promotes the infants' trust in the predictability of people in the environment. The infant is assured that the caregiver will be there and will provide whatever is needed.

Children with severe handicaps also need a stable, nurturant relationship that encourages trust and a feeling of security in the service provider. For the child with severe handicaps, this feeling of nurturance and support from a reliable service provider contributes to the child's interest in people and in future social interactions. When warm relationships are established, the child with severe disabilities is more likely to observe and interact with others. A nurturant atmosphere in the educational environment provides a child with increased interest and motivation to participate in social exchanges.

Example of Nurturance Displayed in the Classroom for Students with Severe-Multiple Handicaps

When it is time to go out to recess, the paraprofessionals need to make sure everyone is dressed properly in coats, gloves, and hats. Sarah, one paraprofessional using an affectionate tone of voice, directs one student, Ken, toward the coat rack. She holds his hand and as they walk they swing their arms back and forth slightly [**communicative function** = *provide information: inform*]. While smiling at Ken, Sarah's tone of voice is warm as she says to him, "It's almost time for recess now, what do you need to do?" [**communicative function** = *request: solicit communicative response*]. Ken returns the smile and looks delighted as he reaches for his coat [**communicative function** = *respond to cue*]. He obviously enjoys the attention Sarah pays him and uses his nonsymbolic behaviors (reaching, smiling) to communicate with Sarah.

Nurturance in a Child-centered Educational Environment

Service providers may incorporate a nurturant atmosphere in the classroom by considering activities that bring the child and adult into pleasurable interactions (Affleck et al., 1982). Children who experience enjoyable activities with a service provider tend to be more relaxed, happy, and receptive than children who feel tense and nervous due to an

overdirective or controlling adult interaction. The service provider can be more sensitive to the ongoing process of the child's developing communicative skills and interests. Focusing on the achievement of specific goals in the curriculum may only cause frustration for both. When interactions with an adult are not overly structured, or concerned only with instruction, the communicative rapport may be spontaneous and enjoyable. When the child has positive feelings associated with the adult and their time together, their bond can become stronger and the child may feel more comfortable and willing to interact.

One way to make the environment more enjoyable is to provide activities and materials that the individual has shown an interest in. When considering activities to promote communication, selecting items that the individual seems to prefer may be met with more alertness and receptivity. Interactions can be initiated by focusing on the child's immediate activity or interest. If the adult initiation is directly related to the child's focus of attention, the child may view the adult as a welcome participant, rather than as one who interrupts the activity. Expressing interest in an activity that the child is absorbed in omits the need to redirect attention and ensures interest.

The adult may also make maximum use of the individual's existing communicative skills rather than concentrating solely on the acquisition of new skills. Building on learned communicative behaviors while targeting a new skill may help incorporate more complex variations of the child's existing repertoire. It is especially helpful to use the child's newly learned skill repeatedly until it is performed without struggle or hesitation. Then building on this act can more easily involve other new situations.

Example of Building on the Individual's Existing Communicative Skills

Mrs. Hall, Mimi's babysitter, is absorbed in a television show and is not playing with Mimi. Mimi starts to fuss quietly, but when Mrs. Hall does not respond she reaches out and

grabs at Mrs. Hall's shoulder and vocalizes loudly [**communicative function** = *initiate: attention*]. Mrs. Hall then responds saying, "What do you want?" [**communicative function** = *response: request clarification*] Mimi immediately grins and makes a funny face and sticks out her tongue [**communicative function** = *repeat: more action/person*] . Mrs. Hall imitates her, taking turns as in their previous game, but this time Mimi is the one to initiate the faces and sounds [**communicative function** = *provide information: demonstrate persons action*]. Mrs. Hall is responsive to Mimi's signals but is aware that it is important to build on these signals so that Mimi's communication repertoire expands. During their games, Mimi occasionally adds gestures and noises that Mrs. Hall has not seen before. Mimi kicks her legs up and claps her hands while she makes her funny sounds. Mrs. Hall responds to the new movements by imitating them and adding variations of her own [**communicative function** = *provide information: demonstrate persons actions and request: solicit action*].

Example of Expanding on Skills in the Classroom

Ian, an 8-year old boy with severe disabilities is learning how to signal the teacher that he would like more of an item or to continue an activity. During snack time he signals that he wants more to drink by touching his hand to his mouth, looking at the juice pitcher, and sometimes vocalizing. The adults in the classroom have all learned to respond to this gesture and want to encourage him to use this behavior to initiate a request for his first drink at snack time. When it is time to pour the drinks, they purposefully wait close to him [**communicative function** = *request: solicit action*]. Ian smiles and reaches for the pitcher [**communicative function** = *request food*]. The teacher gets down to Ian's eye level and guides him to push the juice pitcher toward her and waits for eye contact [**communicative function** = *request: solicit communicative response*]. She does this to teach Ian to use his nonsymbolic behaviors to communicate with a social partner. She then helps him pour the juice.

Enhancing Sensitivity

Sensitivity:

Being aware of, and receptive to, the subtle cues of others.

Role in communication:

Interactions are facilitated when sensitivity is used to perceive and interpret the behaviors of others.

Role in caregiver-infant literature: Caregivers use sensitivity when responding to their infants' nonsymbolic communication, which greatly enhances their interactions.

Role in nonsymbolic communication of individuals with severe disabilities:

Through sensitivity, service providers may recognize the unique communicative cues of the individual with severe disabilities and respond appropriately.

The role sensitivity plays in communication is essential in facilitating a smooth and pleasant interchange. People use sensitivity in their daily interactions in order to perceive and interpret the behaviors of others accurately. A sensitive person is acutely aware of the attitudes and feelings of others, responding to the subtle cues of individuals and sympathetic toward their needs and emotions. This section will focus on the role sensitivity plays in the development of communication in the caregiver-infant dyad. The way caregivers display sensitivity in their nonsymbolic communication with infants may be related to the sensitivity needed in exchanges with children with severe disabilities. If service providers incorporate this degree of sensitivity in the classroom, communicative exchanges may be improved substantially.

Sensitivity in nonsymbolic interactions

The literature on the caregiver-infant relationship views the sensitivity of the caregiver as vital to the infant's communicative ability and progress (Bakeman & Adamson, 1984; Odom, 1983; Snow, 1984). Caregivers typically are sensitive to their infant's unique signals of readiness to communicate (the infant's direct gaze or leaning forward),

allowing the infant a turn during interactions, and carefully waiting until the infant is through responding (Clark & Siefer, 1983). The caregiver's sensitivity to the infant's nonsymbolic modes of communication helps to encourage positive, satisfying interchanges. In many respects, caregivers provide a kind of scaffold for the infant, responding to the infant's communicative behaviors as if they were part of a meaningful conversation (Bruner, 1977; MacDonald, 1985).

The sensitivity that caregivers exhibit facilitates comprehension of the infant's nonsymbolic behaviors, demonstrating that nonsymbolic communication is a common and viable mode for relaying messages. Service providers of children with severe handicaps can also successfully communicate with these children without language or symbols by becoming increasingly aware and receptive to their needs and feelings. Children with severe disabilities functioning at a nonsymbolic level may communicate in a similar manner as the nondisabled infant. They may move unintentionally in ways that can be communicative such as opening their mouth, turning their head, or blinking. It is important for service providers to observe these nonstandard behaviors and to recognize other subtle behaviors that could become attempts at communication.

Unfortunately, most classroom personnel demonstrate extremely low sensitivity to the communicative behaviors of the individual with severe handicaps, generally ignoring student initiated behaviors (Houghton et al., 1987). Service providers who are able to read and anticipate the child's cues, have the most success when they appear to "sense" the child's receptivity, needs and interests of the moment (Affleck, McGrade, McQueeney & Allen, 1982; Newson, 1977). Becoming familiar with the child's nonsymbolic cues and responding sensitively to these cues may greatly enrich the child's understanding of the world.

Example of Caregiver Sensitivity

Tim, a toddler with severe retardation, is fascinated by the bubbles his older brother is blowing. He excitedly vocalizes, gurgling and pointing [**communicative function** = *interest*] at the bubbles as they float up in the air and then land on the ground and pop. His mother is nearby and responds to his gestures during his pauses, saying "Yes, Tom, those are bubbles [**communicative function** = *response:affirm*]. Can you touch one?" [**communicative function** = *request: solicit action*]. Tom becomes excited again, reaching and pointing [**communicative function** = *continue: request action*] at the bubbles and looking at his mother in delight. His mother encourages him to continue expressing himself by responding appropriately to his nonverbal gestures and noises.

Responding to nonsymbolic communication

Sensitive caregivers are responsive to their infants. This is partly due to the fact that they have a considerable history of involvement with their infant that enables them to interpret the infant's behaviors accurately. Before infants communicate intentionally, caregivers attempt to interact with them by searching for behaviors in the infants' facial movements, vocalizations, and body gestures that could be interpreted as communicative responses. Bonds are strengthened by the caregiver's responsivity to the infant's nonsymbolic behaviors.

Caregivers play an essential role in interpreting and conventionalizing gestures of their infants. Their ability to discern the infants signals, and assign meaning to their wide range of expressions promotes each communicative exchange. Some researchers have observed that infants whose mothers were most responsive in the first few months of life demonstrated increased communicative behavior toward the end of the first year, as compared to infants with less responsive mothers (Bell & Ainsworth, 1972; Odom, 1983).

Sensitive caregivers exhibit a seemingly unconscious ability to perceive the infant's intent and respond appropriately. They transform what may appear to be random

vocalizations and gestures into effective social signals. Service providers of children with severe handicaps can benefit by incorporating these natural characteristics of the caregiver into their interactions with children in the classroom. Warm, socially responsive behavior is important, facilitating both attachment and cognitive development. Just as the responsiveness of the caregiver can be related directly to the infant's success or failure in learning to communicate (Carlson & Bricker, 1982), the responsiveness of the service provider may directly influence the success of the child with severe handicaps. When service providers have become sensitive to the individual child's signals, they may be better equipped to capitalize on opportunities that have been initiated subtly by the child. By recognizing each child's unique communicative cues, service providers can facilitate more enjoyable, meaningful interchanges for these children.

Example of Caregiver Responsiveness to Individual's Unique Communication

Jan (a paraprofessional) has been working with Sam (a 10 year old boy who has cerebral palsy and a hearing impairment) at the school long enough to know that when Sam hangs his head back [**communicative function** = *initiate*], he is bored with the present activity and wants to do something else. She is also aware that when he is interested in something, he remains quiet, but his eyes are intensely focused on the object of attention. She uses this knowledge to initiate new activities at an appropriate time. For example when he hangs his head back and sighs [**communicative function** = *initiate*], she initiates his favorite game (hide-and-seek) [**communicative function** = *response : comply*] which helps to regain his attention (or eye focus) and involves him more with the other children.

Increasing Opportunities

Opportunities:

Providing a favorable situation for participation, involvement, or advancement.

Role in communication:

Increased awareness of communicative opportunities increases the likelihood of more social interactions.

Creating additional opportunities promotes the individual's need and desire to communicate.

Role in caregiver-infant literature:

Caregivers use the naturally occurring events of the day as opportunities to interact with their infants.

Role in nonsymbolic communication of individuals with severe disabilities:

Service providers can allow more communicative opportunities to arise for individuals with severe disabilities in a variety of ways: by allowing individuals to express their needs or desires (hunger, tiredness): by perceiving the individual's communicative initiations: by creating more opportunities (time-delay, choice).

Opportunity is described as a suitable occasion, or a favorable set of circumstances for a chance to participate or to progress. For most of us, the opportunity to communicate happens constantly throughout each day since communication is vital to our existence. Engaging in social activities, sharing intimacies with a companion, greeting others, or discussing important issues all require the intricacies of a commonly understood communicative system.

This section will look at the ways caregivers utilize naturally occurring events to incorporate communicative interactions with infants. It will also consider how service providers may increase communicative opportunities in the classroom of individuals with severe disabilities by integrating the kinds of opportunities that occur daily in the caregiver-infant relationship. These daily occurrences generally arise out of the infant's need to communicate something to the caregiver (e.g. hunger, tiredness, or discomfort). For the child with severe disabilities, these natural needs also create opportunities for communication. In addition, this section will look at ways the service provider can create or

expand on communicative opportunities in the classroom.

Opportunities for nonsymbolic interaction

In order to learn to communicate, infants must have opportunities to interact with other people. Immediately after birth, newborn infants communicate to their parents, crying in discomfort when they need to eat, sleep, or receive a change of diapers. During the first year, infants use a variety of nonsymbolic communicative behaviors to express their feelings, interests, and desires to their caregivers. Caregivers respond reliably to these initial demonstrations, creating opportunities for further communicative exchanges. The daily activities of feeding, diapering, and bathing create natural opportunities for communicative exchanges to arise between them. The time spent attending to the infant's physical needs becomes a natural opportunity to interact with the infant, providing a large percentage of the infant's daily communicative input. Caregivers cultivate the infant's communicative development by using many opportunities that arise during the day to elicit interactions.

If caregivers did not respond to the infant's nonsymbolic communication, the infant would not survive. In fact, without communication attempts made, caregivers and infants would be virtually isolated from each other. People without communication or any opportunities for communication are in a sense trapped within their own individual world of private sensations. The world of the individual with severe disabilities may not be far removed from this image of relative isolation. For many of these individuals, their limited communication abilities are their most serious handicap (Mount & Shea, 1982). Researchers are now reexamining the situation of these students in institutions and school training programs where traditionally students have been expected to be passive and compliant. Recently, professionals are focusing on strategies that promote communicative opportunities in order to foster independence, self-reliance, and autonomy (Guess, Benson, &

Siegel-Causey, 1985; Halle, 1985; Peck, 1985; Shevin & Klein, 1984).

Perceiving communicative needs

MacDonald (1985) observed that for many students with severe handicaps, the need to communicate seems to have been eliminated from their environment. In most institutions and school settings, these individuals are dressed, fed, and cared for with minimal input expected or required from them. In fact, service providers may be completely unaware of the amount of care they provide the individual without any communicative interaction occurring between them. Unconsciously routine tasks are taken care of quickly because it is so much easier and efficient. Well meaning care providers often inadvertently preclude a possible communicative interaction by performing daily tasks expediently (Halle, 1984). The individuals, then, learn to rely completely on their service providers (teachers, parents and paraprofessionals) and may exhibit a kind of learned helplessness (Seligman, 1975), because they perceive that they have no control over people or their environment.

Similarly, adults may not expect students with severe disabilities to express themselves or respond in any way during daily interactions. Adults may often talk in a rhetorical manner to individuals who are limited in their communicative abilities, answering questions for them and not seriously expecting them to respond. Perhaps this rhetorical style develops over time because the service provider has not received consistent responses from the individual. Due to the individual's recurring lack of response to the adult's input, the adult might become accustomed to performing the individual's necessary daily activities without attempting to incorporate any reciprocal communication (Halle, 1984).

Overlooking communicative opportunities.

There are several other factors that may contribute to service providers overlooking communicative opportunities with these individuals and thereby reducing the need to

communicate. One important consideration is that many adults might not recognize the individual's own nonsymbolic communicative signals. In this highly verbal world, most people consider that communication occurs primarily through speech. Speech is the most commonly used communication form, and yet it is the most complex since it involves the mastery of a learned, arbitrary symbol system. Individuals who function at a nonsymbolic level might not understand the complexity of a symbol system. Due to cognitive and/or neuromotor deficits, other individuals may never adequately develop speech to meet their communication needs. Nonverbal, nonsymbolic communicative behavior, however, is highly expressive and occurs in most infants long before verbal behavior (Bruner, 1975; Newson, 1977; Sachs, 1984; Yoder & Reichle, 1977). The nonsymbolic behavior of individuals who may not use symbolic communication can be equally expressive and functional.

Another trait exhibited by service providers and caregivers that might inadvertently affect the individual's need and desire to communicate is the tendency to expect a response from the individual only after a prompt, command, or question. Adults might only be aware of individuals as communicators when they ask or prompt them to respond. Thus the individual becomes indirectly dependent on the adult's prompts as the signal for communication and is compelled to be a responder, never an initiator. Unfortunately, the individual might have little need or desire to express anything at these specified moments. If the individual does not fulfill the adult's expectation , however, the adult may come to expect less and less communication from the individual. In time the adult might not believe that the individual has any communicative needs.

Changing the views and expectations of parents, teachers and other service providers toward the individual with severe disabilities may greatly improve their interactions (Affleck et al., 1982). Brown, Evans, Weed, and Owen (1986) found that various adult

providers expressed a lack of confidence in the abilities of students with severe disabilities to problem-solve and request assistance. Perhaps due to this lack of confidence, service providers have developed the habit of doing everything for the individual with severe disabilities. During all types of daily activities the individual's need or desire to communicate has gradually been extinguished.

Not only is there a limited need for the individual to communicate but also service providers may demonstrate a tendency to disregard, ignore, or overlook possible child initiations (Houghton et al., 1987). In the research done by Houghton et al. (1987), the majority of observed student interactions in the classrooms were ignored by attending staff members. One explanation for this may be that the non-standard behaviors and vocalizations of the individual with severe handicaps are viewed as inappropriate or disruptive.

Researchers have reported that caregivers of children experiencing severe language delays actually provide fewer opportunities for the individual to initiate communicative exchanges or participate in turn-taking activities than caregivers of nonhandicapped children (Affleck et al., 1982; Walker & Kershman, 1981; Yoder & Kraat, 1983). These children can be given the opportunity, however, to see that their communicative attempts do have a purpose and that the environment can be affected by their displays.

Creating communicative opportunities

As already noted, when service providers anticipate the needs and desires of individuals with severe disabilities and supply these needs, they may be inadvertently inhibiting communicative attempts on the part of the individual. Individuals need to see the value in their communicative behavior in order to feel they have a reason to communicate. To increase the motivation of individuals with severe disabilities, the behavior of the service provider can be changed to create more opportunities for these individuals to want to communicate.

It is interesting to note that researchers who are not involved with individuals who are severely handicapped are focusing on the importance of recognizing and creating communicative opportunities for individuals with disabilities (Alpert, 1984; Mittler & Berry,1977). Halle (1982,1984,1985) focused on arranging the environment to improve childrens' need and motivation to communicate. One method that he described is the structuring of an interactive situation so that the individual must request something. For example, a child may fully expect a teacher to provide a snack or toy, at a certain moment; and when the teacher hesitates (time-delay), the child may become impatient and demand the teacher to follow through. The child desires to have these expectations fulfilled and is motivated to vocalize or gesture in some way about it. The idea of the teacher delaying information, comments, or materials has been used commonly in the instruction of students with no disabilities. For example, a common practice seen in many school settings is for the teacher to hesitate after a question, prompting students to provide an answer. This allows students to relay what they know. Likewise, delaying assistance to a learner with severe disabilities prompts learners to perform without help and thus display their competency and understanding in that context.

Example of Creating Opportunities to Communicate

A student, Howie, with moderate motor-impairment and hearing loss, is accustomed to the help his teacher provides when he needs to get on his coat for recess or at the end of the day. Occasionally, the teacher stands nearby but does not attempt to assist him [**communicative function** = *regulate: reinforce*]. With much effort, Howie will get his coat off its hook and as he vocalizes, he reaches toward the teacher with the coat in his hands [**communicative function** = *initiate: offer*]. The teacher responds quickly, "Howie, do you need help with your coat?" [**communicative function** = *re.ponse: answer and request: solicit communicative response*]. Howie vocalizes. "I will

be happy to help you," his teacher responds [**communicative function** = *response: affirm*].

Halle (1984) found that caregivers and teachers of children with severe language delay need to recognize and create new language learning opportunities. Musselwhite (1986) asks teachers and service providers, "Does the child have a need to communicate in this situation?" (p. 27). If individuals do not have a "need" to communicate, the objects, events, and the actions of people need to be altered to create a reason for communicating. In essence, the environment should be arranged to evoke communication opportunities. When situations are provided that create a need for the individual to communicate, there is greater opportunity for an increase in self-initiated interactions and communicative behaviors.

Providing opportunities to make choices and decisions. Within any given activity, the adult can arrange the setting to increase the number of choices or decisions that the individual has the opportunity to make. Like all people, individuals with severe disabilities need opportunities throughout the day to express choice. Within the routines of the day, individuals may have many occasions to choose among activities, desired objects, partners to play with, or whether or not to engage in an activity.

Example of Providing Choices

At snack time, the teacher comes by with a tray of juice and milk. She asks each student when she comes to him, "Do you want juice or milk?" as she points to the drinks [**communicative function** = *request: solicit response*]. One child, Tammy, responds with a soft vocalization and turning her eye focus toward the juice glass [**communicative function** = *respond to cue*]. The teacher guides her hand then towards the glass and helps her place it on the table [**communicative function** = *response: comply*]. Another child, Jack, does not respond, even when the question is repeated [**communicative function** = *request: solicit response*]. The teacher says, "That's ok, Jack. If you don't want a drink, I'll check back with you later." [**communicative**

function = *response: comply and provide information: comment*).

Service providers may overlook the needs of individuals to express choice because it is sometimes easier to choose for them. The individual's decision may create situations that were not expected. Sometimes in school and home settings, child-initiated behaviors may be viewed as disruptive to the schedule or planned event. It is important for service providers to recognize the significance of decision making, choosing and initiating, and to determine the times and situations in which they can be flexible and allow the learner more of these opportunities.

Service providers can encourage other personnel to be accepting of the individual's choice, decision, or lack of response. It is important to emphasize that there are no right or wrong choices. If a child chooses not to respond, the service provider can always return and ask the child again, providing another opportunity for the learner. If there are no expectations for a individual's "appropriate" response, a more accepting atmosphere for decisions and choices will be created.

When individuals with severe disabilities are overprotected, they are being denied their basic right to choose and learn the consequences of their decisions. It is important that they are allowed to experience a sense of accomplishment, to try to make decisions or perform independently, even at the risk of failure (Guess et al., 1985).

Sequencing Experiences

Sequence:

Organizing a related series of activities, into a sequential, predictable format.

Role in communication:

The use of ordered sequences increases the individual's familiarity with interactions, facilitating communication by promoting more active participation in social exchanges.

Role in caregiver-infant literature:

Through the regularly recurring activities of the day, caregivers develop predictable patterns in their interactions with infants, which help infants become more involved in their interchange.

Role in nonsymbolic communication of individuals with severe disabilities:

The arrangement of a definite sequence of activities helps promote communicative interactions with individuals who are severely disabled, by increasing anticipation of events and specific roles in the interaction.

Many experiences of daily life provide a useful framework to arrange activities in a predictable sequence. Establishing a repetitive sequence is helpful for any person to acquire new skills or to complete a task efficiently. We all rely on recurring patterns or habits within the structures of our daily lives, whether it is the pattern we use to wash dishes, do exercises, or get ready for work. When a consistent steady process becomes established, events progress more smoothly without the need for detailed planning and thinking about the process.

This section will examine the literature on early interactions between caregivers and infants which focuses on the importance of establishing predictable routines during the day. It will also consider how the integration of repetitive sequences within the classroom for individuals with severe disabilities may increase their participation and enhance social exchanges. In the caregiver-infant relationship, organizing daily activities into a regulated, sequential format allows the infant to become more familiar with the structure of

the immediate environment. This familiarity encourages infants to participate more actively in interactions with their caregivers. Communication development is facilitated when infants recognize the patterns of a daily routine and can act as proficient members of a dyad, assuming a definite role in the interchange. Investigators generally agree that during infant nonsymbolic exchanges maternal utterances emitted in a specific order (as seen in games or repetitive sequences) help to establish a predictable, familiar world for the child. In addition the infant's signals, when emitted in a consistent context and interpreted by the caregiver in a consistent manner, promote later acquisition of communicative skills (Bruner, 1975; Rogow, 1984; Writer, 1987; Yoder & Reichle, 1977).

For individuals with severe handicaps, the arrangement of a definite sequence of activities that includes repetitive practice can help to promote anticipation and involvement. There are a number of daily activities where successive routines are possible: self help activities (dressing, bathing, preparing meals), leisure time activities (games and freeplay), or at transition times (e.g. from school to home). A routine sequence of events can occur each day that is functionally related to the task at hand, giving the sequence added meaning. These regularized formats provide a useful structure that contains a kind of rule-bound framework. Over time a consistent set of routines allows an individual with severe disabilities to become familiar with the routines of the day and to begin to feel more comfortable and secure within each activity.

An educational approach incorporating the use of a sequence of skill clusters in the curriculum, the Individualized Curriculum Sequencing (ICS) model, was first conceptualized by Guess and colleges (Guess et al. 1978). The model is based on the theoretical assumption that learning is best achieved through the teaching of skill clusters that are meaningful and functional for the learner. Research on the effectiveness of the

sequence model has been carried out for five years, proving its relevance for the population of individuals with severe handicaps (Helmstetter & Guess, 1987). Readers may refer to the following citations for further information on the implementation of this curriculum model (Brown, Holvoet, Guess, & Mulligan, 1980; Holvoet, Guess, Mulligan, & Brown, 1980; Mulligan, Guess, Holvoet, & Brown, 1980; Sailor & Guess, 1983).

Arranging sequences. Ordered sequences can provide many opportunities for communication if arranged properly within the setting of daily activities. For example, it is important to use the same signals or cues to announce the end or beginning of an activity. (e.g., putting chairs up to the table for snack time, an alarm ringing to end an activity). A repetitive sequence of exchanges can be embedded into each activity. This "redundancy" provides many opportunities for a child with severe disabilities to practice actions in a predictable format. With the building of recurring events, a child with severe multiple handicaps comes to anticipate what may happen next (Holvoet, Mulligan, Schussler, Lacy, & Guess, 1984; Writer, 1987). This establishment and maintenance of consistent daily experiences may increase the child's communicative role and promote further interaction skills.

Example of Repetition in a Daily Activity

During the school day there are many activities that can incorporate the occurrence of a specific repetitive sequence. For example, any structured one-to-one activity can incorporate a sequence similar to the following:
Beginning:

1) Warning that activity will occur:
   Verbal cue combined with gestural cue -"John, lunch" and guides John to make the gesture as if holding his lunch sack[**communicative function** = *provide information: describe person's actions*].
2) Participate in gathering materials:
   Adult gets near John but waits for him to get adult's

attention. John leans forward [**communicative function** = *request action*] to signal he is ready to move forward. John is then helped to push his wheelchair to the refrigerator and he gets out his lunch sack.

3) Ready to do activity:

The adult pauses and waits [**communicative function** = *request: solicit action*]. John leans forward toward the doorway [**communicative function** = *respond to cue*] The adult and John go to the cafeteria.

Ending:

4) Warning that activity is finished:

After lunch, the adult uses a verbal cue combined with gestural cue - "All done" and guides his hands to feel the empty food container.

[**communicative function** = *provide information: describe object*]

5) Participate in putting away materials:

Adult waits close to John until he gets their attention [**communicative function** = *solicit action*]. John leans forward [**communicative function** = *request action*]. "Oh, you are ready to go" [**communicative function** = *acknowledge*] John is guided to push his wheelchair and helped to put his lunch sack on a shelf.

6) Completion:

The adult uses a verbal cue "all done" combined with gestural cue [**communicative function** = *provide information: demonstrate action*].

This system of verbal and gestural cues at the beginning and ending of activities, coupled with specific communicative roles John must play, can be used at many different times during the day such as going outside, doing fine motor tasks, and having physical therapy.

Increased social awareness. Awareness of the other person is a critical component in the development of communication. In communicative interactions, children learn the importance of social partners who receive their messages and provide contingent feedback. With the consistent structuring of daily events, individuals with severe disabilities may demonstrate increased participation and awareness of people. Through these exchanges, the

learner develops cognitively (sequencing events) and socially (recognizing other people as communicative agents).

In order to estab' ;h a particular communicative sequence, service providers should initially regard any signal from the child associated with the sequence as a communicative response, indicating the child's interest and involvement (Rogow, 1984). By participating in these interactions in a consistent framework, the child with severe disabilities learns to recognize other people as valuable social partners. Their shared activities lead to shared understandings, incorporating a salient part of communicative exchanges.

Example of Increased Social Awareness

Every afternoon the preschool classroom of children with and without disabilities have a game and song time. The beginning of their group time together always starts with a familiar song that involves introducing each child to the rest of the group. To the tune of Are you sleeping, they sing, "Where is Emily, where is Emily..." taking turns, substituting each child's name into the song. The service provider has a photograph of each child and as the song comes to its last line (for each child), the teacher gives the child their picture, while the song ends with "There you are!" [**communicative function** = *provide information: describe person*]. Emily is extremely happy to hear her name called over and over in the song. She is clapping her hands together and looking around the table at everyone [**communicative function** = *continue: request attention*]. When the teacher extends Emily the photograph, she reaches for it excitedly and smiles broadly at the group. Everyday the children can anticipate beginning the session with the "name song." The more they hear the song, the more they participate in this fun activity that involves communication with partners in a positive fashion.

Patterns in games. The recurrent patterns that exist within infant-caregiver games are a good example of the helpful framework provided by sequencing events. Games typically follow simple rules, exemplifying the structure of a conversation. Games also provide a

reliable setting for children with severe handicaps to learn that their behaviors do have predictable outcomes. Repeated performance enables these children to discover that their actions can bring consistent results from the service provider. The service provider can imitate or elaborate on the child's behavior, thus holding the child's attention at the same time that they are both focused on the same subject. In games, anticipation is shared within a predictable sequence of events.

Example of Reciprocity seen in Games

> Mimi, 14 months old, watches her baby sitter, Mrs. Hall, making funny faces. Mrs. Hall says, "Watch me make a funny face," crinkles her nose, sticks out her tongue and rolls her eyes [**communicative function** = *provide information: inform*]. Mimi watches closely and then tries to crinkle her nose. She opens her mouth, and sticks out her tongue and laughs [**communicative function** = *continue: request action/person*]. Then Mrs. Hall says, "I'm going to make funny noises." She gurgles and makes nonsense sounds [**communicative function** = *response: comply*]. Mimi then mimics Mrs. Hall, vocalizing an "aahh" and adding another funny face [**communicative function** = *continue: request action/person*]. They alternate, back and forth, taking turns making faces and funny sounds.

The pauses that occur naturally in games between infants and caregivers help to establish the concept of turn-taking, an essential component of conversation. These pauses clue infants to their turns and allow them to actively participate and expect the next turn. Infants gradually develop an increased understanding of their roles in the interchanges and may assume more responsibility, eventually initiating game sequences. Through repeated experiences at a game, early infant behaviors that at first might have been unintentional, become intended responses to keep the game sequence going, or to achieve a particular goal. This is due in large part to the caregiver's sensitive responding to the infant's first behaviors as if they were intentional.

The give-and-take structure of game playing provides a useful format to regulate the behaviors of the child with severe disabilities. Service providers can also respond to the reflexive or unintentional behaviors of the child with severe disabilities as if they were intentional. Responding sensitively and appropriately to the child's behaviors within a game sequence can increase participation and awareness within interactions. The consistent patterns of games helps to establish a firm foundation for more complex communicative exchanges.

Example of Increased Participation through Games

> Holly, a child with severe multiple disabilities, loves to play the game 'pat-a-cake' because her friend, Lisa, from the first grade has taught her the hand movements and she likes it when they clap their hands together. Holly feels that Lisa is her 'pat-a-cake' partner and she often seeks her out at recess so that they can play the game together.
>
> When she finds Lisa on the playground, she will smile and bring her hands together [**communicative function** = *initiate*], which signals to Lisa that she wants to play their special game. Before Lisa taught Holly the game, Holly had no real interest in interaction with the other students.

Contingency in social routines. Social routines and games provide a setting for the infant and caregiver to have many contingent experiences. The structure of routines provides consistent opportunities for the infant's behaviors to be responded to immediately, appropriately, and reliably. The adult's responses are contingent on the infant's behaviors in that they are conditioned by and dependent on the infant's cues. In addition, the clear, repetitive structure of routines enables the infant to become immediately familiar with the context and with the reliable responses of the adult.

A partnership is formed during routines, each participant relaying and requesting meaningful feedback. The more apparent and predictable the child's signals, the more the adult can respond contingently. For the learner with severe handicaps, the service provider

may need to respond broadly at first to most forms of the child's behaviors. As the adult becomes more familiar with the learner's communicative behaviors, the responses can become more individualized, relevant, and more contingent. By receiving contingent, positive reinforcers from the caregiver, individuals with severe handicaps begin to recognize that their attempts at communication can be successful. They find that they do have the capacity to influence people and their environment and that they are, in turn, responded to.

Routines and games clearly shape an understanding of reciprocal roles by providing a setting for mutual exchange (Rogow, 1984). Through repeated experiences during games, gestures made in response to the adult become intentional. Gradually, these gestures are performed to achieve a specific goal. Infants and children with severe handicaps may gradually become aware of their ability to change or manipulate the responses of the caregiver. When the daily ritual of games and routines is well established, the child with severe disabilities is able to demonstrate more control over a course of events.

Example of Contingency in Social Routines

> The first time Joey saw his older sister play peek-a-boo, he just giggled [**communicative function** = *interest*] when she hid herself under a blanket and came out unexpectedly. After a few repetitions, however, Joey appeared to want to hide under the blanket and surprise his sister, too. He reached for the blanket, fussing and grunting [**communicative function** = *continue: request action*] in his determination to be the one hidden under the blanket. His sister cooperated by throwing the blanket over him [**communicative function** = *response: affirm, comply*] and then feigning surprise, she calls out "peek-a-boo" as he pops out at her.

Once the learner is comfortable with a routine, some deviation from the structure may be effective in encouraging further anticipation and interest. Any child with severe

disabilities can benefit from the structuring and restructuring of specific games or routines. A slight change within a clear, repetitive routine will further enhance anticipation and involvement. In fact, altering a well-established routine slightly is an ideal way to create a "need" for the child to communicate. As previously discussed, the disruption of an anticipated action can prompt the child to communicate by questioning or requesting information. It is important that classroom routines do not become so consistent that children are over-programmed and dependent on the exact routine to function effectively.

Utilizing Movement

Movement:

Referring to part of the Van Dijk theory of adult and child participating in reciprocal exchanges through the mutual physical movements of their bodies.

Role in communication:

The use of movement encourages communication by developing the individual's: a) awareness of self; b) separation of self from the environment; and c) recognition of others as responsive, social partners.

Role in caregiver-infant literature:

Early infant movement forms a foundation for learning since infants first explore their world through the movements of their bodies.

Role in nonsymbolic communication of individuals with severe disabilities:

Children with severe disabilities may be more focused on themselves and may need encouragement to explore their environment. Movement activities help to stimulate their awareness of the world and might contribute to their responsiveness to social partners.

Infants make their first attempts at exploring the world around them through the movements of their bodies. Through their first struggling motions they find out how to move and what their bodies can do in the world in which they live. Ward (1981) suggested that the infant's early movement activities form a foundation for learning, including later acquisition of language and cognitive skills. Infants use their bodies immediately to move about and explore the world. They also respond positively to physical stimulation from others such as being tickled or tossed.

Children who are severely disabled or deaf-blind also exhibit an interest in physical sensations, yet their actions appear to be more inwardly directed and focused on themselves. Similar to the nondisabled infant, their attention is naturally directed to their physical body except they appear to be preoccupied more with internal bodily sensations. This may manifest itself in physical behaviors such as self-stimulatory movements. The world of children who are severely disabled or deaf-blind may encompass no more than their

internal sensations and attempts by them to satisfy their basic physical needs. The world of the nondisabled newborn is similar initially, except that more cognitive exploration is incorporated into their physical movement.

Jan van Dijk observed the differences between the first stages of movement exploration for infants without disabilities and the more isolated world of the child who is deaf-blind. He theorized that children who are severely disabled and/or deaf-blind need encouragement to explore their environment. They are more dependent on people to help them develop an awareness of a world outside of themselves. Van Dijk (1965a, 1965b, 1966, 1986) developed an intervention theory to encourage communication in children who are deaf-blind that utilizes the concept of movement to stimulate awareness and cognitive growth. We are interested in the reasoning behind van Dijk's theoretical concepts and how it might apply to children who are multiply handicapped, motor impaired, and functioning at a lower cognitive level than the children for whom he originally developed his communication theory.

Van Dijk believed that movement activity develops childrens' awareness of themselves, and their bodies as vehicles to explore the world. For young children who are deaf-blind, the world might extend no further than their own bodies. In addition, motor dysfunctions may impair childrens' abilities to respond to the environment and they may be reliant upon others to bring the environment to them. Children with severe disabilities who are limited in their interaction with the environment often have difficulty developing a concept of themselves as physical and mental beings. They may have trouble differentiating between themselves and other persons and things in the environment. Before the world can be enlarged for these children, they must first have a clear sense of self. Movement

activities may enhance children's perception of their own bodies and encourage their understanding of the separation of self from the environment.

As children develop a clear sense of their own bodies their knowledge extends further as they begin to develop concepts involving where their body is in space (spatial relationship) and what physical movements they can control. When children realize the separateness of themselves from the world, they may be motivated to explore their environment. Piaget (1964) observed how children naturally partake in movement activities (including object manipulations) which encourage the development of cognitive skills necessary for acquiring communication. When children are actively involved in the environment, they observe their bodies, their movements, and the relationship of themselves to other things in the environment (Robinson & Allen, 1975) .

Van Dijk's movement-based program is comprised of many levels. In this manual, however, only the first three components: resonance movement, coactive movement, and imitation will be discussed. The focus of the activities in each van Dijk level are designed to encourage the child's concept of distance between self and the environment. In addition to the articles by van Dijk (1965a, 1965b, 1966, 1967, 1986) a primary source for this section of the manual was based on Stillman and Battle's interpretation (1984).

It is important to recognize that the movement-based approach (van Dijk, 1965a, 1965b, 1966, 1967, 1986) was designed for learners who had sensory impairments but had no motor or physical impairments. Learners with severe multiple disabilities often have accompanying motor impairments and thus, the movement-based intervention requires adaptations in instruction. Secondly, the movement-based approach is most appropriately implemented with learners during preschool and early elementary school ages. Implementing some of the specific resonance and coactive movement activities requires the

instructor to lift, hold, or bear some of the learners' weight and therefore are appropriate only for learners who are smaller in size and weight than the instructor and below a weight of 40 to 50 pounds.

Resonance Movement

Resonance activities are designed to shift the child's focus of attention from self to the external world of people and objects. Resonance activities are very similar to early adult-infant interactions. The adult draws the child's attention through movements with the child that are of particular interest. These might be actions that the child initiates spontaneously or is familiar with and enjoys. In resonance activities the child and adult maintain direct physical contact, because at this stage the child is most responsive to what his/her body does. Resonance activities generally have a start-stop format. The adult moves with the child, pauses, and waits for the child to signal for the movement to start again. Then the adult reinitiates moving. The pauses allow the child to initiate a signal of any kind (e.g., smile, gesture, vocalization, change in muscle tone) indicating the desire to continue. During the movement dialogue the adult or child may modify the movement; for example, rocking sideways instead of forward or backward. What is important is to provide the child with the direct effects of his/her own behavior, effectively producing a change in the environment or activity. The adult must be particularly sensitive and respond to the child as if his/her nuances of signals (e.g., facial cues, relaxation of the body) are communication. Within resonance activities an elementary form of dialogue is established, with both child and adult having the opportunity to respond to each other's movements as if they were engaged in give-and-take conversation.

Example of Resonance Movement

Sometimes when Lisa wakes up from a nap, she and her mother play a "resonance" game together. Her mother will lift her from her crib, and sit behind Lisa on the floor, so that Lisa is leaning comfortably against her mother's chest and sits cradled between her mother's crossed legs [**communicative function** = *provide information: inform*]. Lisa's muscle tone is tight and she has limited control over the movements of her arms. Her mother holds onto Lisa's hands [**communicative function** = *provide information: inform*] and together they make small funny-shaped circles in the air. Lisa enjoys this and she usually giggles [**communicative function** = *interest*]. Her mother will pause from time-to-time in the movement and wait [**communicative function** = *request: solicit action*] until Lisa initiates her own slight motion with her hands [**communicative function** = *continue: request action/person*]. Then her mother reinstates the movement.

Coactive Movement

Coactive activities are an extension of resonance activities. The basic difference between the two is one of physical distance. In resonance activities the adult and child are in close physical contact. In coactive activities the movements of child and adult are gradually separated. This requires children to maintain greater attention and to associate their own actions with what they observe. Coactive movements can occur when the child has participated in many resonance activities and begins to demonstrate an ability to move with the adult with less physical contact. The same start-stop format is maintained, and the adult is especially sensitive to the child's signals. It is important for the adult to be responsive to every communicative effort of the child and to recognize each attempt as valuable and valid (Writer, in press). Coactive movements can become more complex by introducing movement sequences (e.g., crawl-walk-turn) that are within the child's repertoire. They may be a variation or combination of familiar movements that, with consistent repetition, the child can learn to anticipate the order and sequence of the movements. Coactive movements, using the same format as resonance movements, encourage the child to move

from the world of the concrete and physical to a more abstract level, where the adult and child maintain a movement dialogue without the direct physical contact of the body.

Example of Coactive Movement

As Lisa matures, the game with her mother becomes more a "coactive" game. Her mother does not hold Lisa closely in her lap. Instead, she creates more physical distance between them so that their primary body contact is occasional hand-holding [communicative function = *provide information*]. Lisa's mother lifts her hands and Lisa imitates her (simultaneous imitation) and together they take turns guiding each other's hand movements while they imitate each other's movements.

Lisa's mother eventually elaborates on this coactive 'mirroring activity and begins to use her feet and head to move in funny small ways [communicative function = *provide information: inform*] and Lisa giggles in delight [communicative function = *request action*]. She tries to copy her mother's funny motions [communicative function = *respond to cue*]. They each take turns moving their hands, then feet, then head. Again Lisa's mom pauses from time-to-time [communicative function = *request: solicit action*] to wait for Lisa's initiation.

Imitation

The third level, imitation, focuses on the child's growing ability to depict and demonstrate the actions of others. Imitation activities are similar to coactive movement, except with the gradual introduction of temporal distance. The adult may imitate a child's familiar movement, while the child is watching. The child is encouraged to join in with the adult's movement and to complete the action in a coactive manner Gradually, the adult demonstrates more of the movement while the child watches, until both adult and child are performing the sequence of movements at different times by imitating each other. Once a repertoire of movements is established within the dyad, the motions can be varied by introducing modifications and different components into a sequence that requires more

sophisticated communication, or more quality in the response. Imitation activities enhance the childrens' growing ability to observe the actions of another person and to perceive the relationship between those actions and their own.

Example of Imitation in Movement

> In time, Lisa's mother sees that Lisa is capable of watching and imitating the movements, to the best of her ability, even if they do not move together. She encourages Lisa in their imitation game by mimicking precisely what Lisa does, just after Lisa has completed the motion [**communicative function** = *provide information: comment*]. Lisa's mother may elaborate on Lisa's motion slightly [**communicative function** = *request: solicit action*] so that Lisa, in turn, expands her own original movements to first incorporate what she saw her mother do and then add something by herself [**communicative function** = *respond to cue*]. In this sense, Lisa is partially creating the sequence of movements, in spite of her physical limitations.

Increased Awareness and Participation through Movement

In all of these stages, the child's awareness of other people is promoted. Beginning with the resonance stage, children enter into a communicative relationship with the adult based on their unique exchanges during movement dialogues. Through their initial close physical contact, the child becomes familiar, not only with the adult, but also with the sequence of movements they might perform together. Children begin to expect a start and stop in the routines and begin to formulate signals and responses of their own that, in turn, affect the movement activity. Gradually, children become aware of the effect of their own behavior to initiate or end a movement cycle with another person.

In the coactive and imitative stages, the child's increasing involvement with another person is promoted further. Additionally, the child begins to function without as much support, first spatially, then temporally. This expanded awareness of people and sequences occurs as children come to recognize the ways in which they can affect people and alter their

environment. Once a consistent repetition of movements is established, the child begins to recognize others within a familiar sequence. By performing these actions progressively in the various van Dijk levels, children may become increasingly aware of the person they are interacting with and the manner in which they control the movement interchange.

Some of the unique characteristics of the van Dijk approach are the manner in which the intervention utilizes the spontaneous behaviors of the child. This technique takes advantage of childrens' natural desires to move in some way. It appeals to them and increases their motivation to interact with someone when they see their own action performed by someone else. The behaviors they once performed in isolation are now a part of a communicative-movement dialogue.

Van Dijk's first three levels (resonance movements, coactive movements, and imitation) are not hierarchical in nature. A child may function at all three levels during the same period of time, because one level is not a prerequisite for the next level. For example, a child may need resonance movements for some interactions but in other activities might respond in an imitative fashion. The underlying salient factor in all levels is the idea that children become interested in the world by perceiving how they influence their environment. When the adult initially follows the child and matches the child's movements, the child becomes an active participant in a social, communicative interaction. In a direct, physical way the child becomes involved in the world, in people, and in many opportunities for communication that occur naturally within social interactions. These children are no longer at the mercy of the environment, isolated and withdrawn inside themselves. Instead, they are actively involved, moving, responding and initiating exchanges with other people.

Briefly we have attempted to summarize van Dijk's movement based approach. It would be impossible, however, to do justice to the complexity of his theory within the

context of this manual. Our condensed version is a brief synopsis that we believe is relevant to children who are severely retarded, motor impaired and sensory impaired. For a more thorough description of the van Dijk approach, refer to articles in the bibliography (Stillman & Battle, 1984; Writer, 1987; and van Dijk, 1965a, 1965b, 1966, 1967 & 1986).

SECTION 3

PROCEDURES FOR ENHANCING NONSYMBOLIC COMMUNICATION

Ellin Siegel-Causey & Barbara Ernst

The purpose of this section is to demonstrate the way the five instructional guidelines (developing nurturance, enhancing sensivity, sequencing experiences, increasing opportunities, and utilizing movement) can be implemented by service providers. The strategies are linked to specific purposes:

DEVELOPING NURTURANCE: To foster an atmosphere of warmth and security, by providing sustenance and support.

Purpose: Builds an individual's sense of trust in the service provider and secure feeling within the environment.

ENHANCING SENSITIVITY: To perceive, interpret, and respond to nonsymbolic behaviors in a sensitive fashion that is appropriate and satisfying to the recipient.

Purpose: Facilitates communicative behavior and awareness of another person as an important agent in social interactions.

SEQUENCING EXPERIENCES : To organize experiences in a manner that establishes routines based on regularized formats.

Purpose: Increases the individuals' familiarity with interactions, which in turn, allows them to anticipate the next occurrence and furthers their active participation in the give-and-take of social exchanges.

INCREASING OPPORTUNITIES: To create and facilitate situations that allow communicative interactions to arise naturally.

Purpose: Aids communication by promoting opportunities for individuals to experience communicative exchanges.

UTILIZING MOVEMENT: To utilize the partnership of adult and child participating in reciprocal exchanges through the mutual physical movements of their bodies (based on the van Dijk theory).

Purpose: Encourages communicative exchanges by developing the individual's: a) awareness of self, b) separation of self from the environment, and c) recognition of others as responsive, social partners.

It is important, however, that the exact usage of each guideline depend on a) the individual's current communicative functioning; and b) the specific communication goals for that individual.

The previous sections have presented the philosophical orientation and literature support for the instructional guidelines. It is important that the philosophy of the instructional guidelines be understood in order to avoid a "step-by-step cookbook" approach to the communication intervention. Therefore, this section uses examples of interactions in a dialogue-like format. The reader is encouraged to 'act out' the dialogues. In addition, space is provided within some of the examples to allow the reader an opportunity to utilize the intervention techniques by creating personal dialogue examples.

Descriptions of interactions between service providers and learners who are severely disabled and who use nonsymbolic communication are presented in dialogue format in the following pages. The interactions depict the use of the instructional guidelines reviewed in Section 2. The instructional guidelines used are listed in Table 3. Italics and brackets are used to note the nonsymbolic behavior that corresponds to the specific instructional guidelines.

Table 3
Intervention Guidelines that Occur in the Dialogues

Strategy
NURTURANCE
Provide support, comfort, affection
Focus on individual's interest
SENSITIVITY
Recognize nonsymbolic behaviors
Respond to nonsymbolic behaviors
SEQUENCING
Increase social awareness
Establish routines
Use patterns in games
Provide turn-taking
OPPORTUNITIES
Use time-delay
Provide choices
MOVEMENT
Develop resonance dialogues
Increase coactive exchanges
Create imitative interactions

In the following dialogues:
BOLD ITALICS in the adult script correspond to the actions of the adult that demonstrates the intervention guideline. Brackets indicate the name of the intervention guideline that the adult uses.
BOLD ITALICS in the child script designates the child's use of nonsymbolic behavior.

Description of Amy and the purposes of her communication intervention

AMY
Amy is 3 years old. Her muscle tone is tight. She has a mild hearing loss (40 db). Amy directs her gaze and follows visual stimuli. Assessment reveals her overall functioning around the 10 - 12 month level. She requires help to move around and adaptive equipment to sit up.

Purposes for Amy's communication intervention:

Developing Nurturance
Develop a warm, affectionate relationship with the new paraprofessional, Carol.

Enhancing Sensitivity
Recognize Amy's nonsymbolic behaviors as effective signals.

Sequencing Experiences
Establish routines within daily events to teach Amy to: a) anticipate what is going to occur next; and b) provide an opportunity for Amy to participate in turn-taking.

Increasing Opportunities
increase Amy's opportunities to communicate by: a) waiting for her to communicate the desire for attention to her needs of hunger, thirst, pain, and affection; and b) provide consistent time-delays (pauses) during interactions.

Utilizing Movement
Utilize resonance activities to: a) stimulate Amy's body awareness; and b) provide give and take interactions in which both Amy and the service provider respond to each other's nonsymbolic communication.

Setting: Preschool classroom, 11:45 am. The teacher is getting lunch ready and the paraprofessional is changing children's diapers. Amy is lying on the floor playing with a switch that turns on a vibrating heating pad she is on.

AMY DIALOGUE #1: Transition to new activity

ADULT	LEARNER
Carol (paraprofessional) realizes that it is likely that Amy's diaper needs to be changed but is ***waiting*** for Amy to indicate this *[Opportunities]*.	
	Amy's ***eyes follow*** Carol as she attends to another child nearby. After a few minutes pass, Amy starts to ***whine***.
"Oh, I hear Amy - I am coming" *[Sensitivity]*.	
	Amy's ***whine*** decreases in volume.
Carol gets on the floor next to Amy.	
"I heard you call me." She ***imitates*** Amy's whine *[Sensitivity]*. "Are you wet?"	
She takes Amy's hand and ***hand-over-hand*** they ***pat*** her diaper *[Movement]*.	
After a few taps, Carol pauses, ***gazes*** at Amy, keeping their hands close to the diaper: All tapping ***ceases*** *[Opportunities: time-delay]*.	
	Amy ***pulls*** her hand slightly towards her diaper.

Carol says "Amy wet" as she resumes the ***hand-over-hand tapping [Movement].***

Amy ***vocalizes*** "aah" during the tapping.

"I hear you - let's go change your diapers," ***smiling*** at Amy and ***pauses*** again ***[Sensitivity and Nurturance].***

Carol carries Amy to the changing table, lays her down, and begins to change her diapers.

During the change of diapers Amy ***coos.***

Carol ***responds*** by ***Imitating [Sensitivity]*** the coo sound and ***pausing*** repeatedly to give Amy a turn ***[Opportunities and Sequencing].***

Amy ***coos*** intermittently during the interchange.

"You're changed now" as she takes Amy's hand and ***hand-over-hand*** they ***stroke*** her fist across the diaper at waist level ***[Movement and Sequencing].***

Carol places one arm under both of Amy's knees and the other arm across her shoulders. She ***presses inward*** slightly and ***asks*** "Want up?" ***[Opportunities]***

She pauses.

Amy brings her ***head forward*** slightly.

Carol says "I feel your head move, Amy ready?" as she ***lifts her up*** away from the table *[Sensitivity: responding]*.

Amy ***smiles*** as she is lifted.

Carol initiates a ***movement game*** by lifting Amy in a playful up and down motion a few times *[Nurturance and Movement]*.

During the movement Amy occasionally ***vocalizes*** a soft sound.

Carol ***feels the change*** in Amy's muscle tone *[Sensitivity: recognizing nonsymbolic behavior]*.

Carol pauses ***"Want more"*** and ***directs*** her ***attention*** to Amy's face *[Opportunities]*.

Amy ***relaxes*** her legs slightly ***towards*** Carol's body.

"I feel your legs move. You do want more" *[Sensitivity: responding]* as Carol ***presses*** her hands on Amy's shoulder and under her knees Carol ***repeats*** this ***movement game*** a few times *[Movement and Sequencing]*.

During the pauses in the game, Amy ***moves a leg***, ***vocalizes***, or ***smiles*** to resume the up/down movement.

Carol ***continues*** the cycle of the ***game*** a few times until Amy does not respond during a 10 second pause. ***"You don't want more"*** and brings Amy to lie down on the floor *[Sensitivity]*.

"Lunch time, roll to wheelchair."

Carol places Amy on her side as she says ***"Ready to roll?"***

Leaving her hands at shoulder and hip, she ***pauses*** *[Opportunities: time delay]*.

Amy ***coos.***

Carol uses ***pauses*** prior to helping Amy roll over to get all the way to the lunch area that is a few feet away. Carol says "go" while she rolls Amy to her side. She ***holds*** her hands at Amy's shoulder and hips and ***waits*** *[Opportunities: time-delay]*.

Amy *leans forward* slightly with her torso.

"I feel you move. Go" *[Sensitivity]*. and ***rolls*** Amy three fourths of a roll (stomach, side, back, side).

She ***pauses*** so that Amy is on her side facing the diapering area again. "Ready to roll?" ***leaving her hands*** at Amy's shoulder and hip. ***Pauses.*** *[Sequencing: routines and Opportunities]*.

Amy *extends* her top *arm forward* slightly.

"I feel your arm move! Go." *[Sensitivity]* and rolls Amy again the 3/4 turn and ***pauses*** to give Amy a turn *[Opportunities: time-delay]*.

Amy *leans her torso forward* slightly.

"I feel you move. Go." [Sensitivity]. Carol ***rolls*** Amy three-quarter's of a roll and ***pauses*** to give Amy an opportunity to indicate she is ready to roll again *[Sequencing and Opportunities]*.

This ***process*** of rolling, stopping, rolling, ***continues*** until Amy is next to her wheelchair in the lunch area.

Carol says "wheelchair" as she leans Amy's torso against the wheelchair.

Carol helps Amy sit up by ***pressing her hands*** at Amy's shoulder and hip. "Want up?" *[Opportunities and Sequencing: routines]*

After a few seconds Amy ***lifts her head up*** toward the wheelchair.

"Oh you do want up" and lifts her up into her wheelchair.

Carol says "Sit back" just before Amy's head is against the head rest. She ***pauses*** *[Opportunities: time-delay]*.

Amy ***moves her head back*** slightly.

"Good work, Amy" and gives her a ***kiss*** as she straps her in the wheelchair *[Nurturance]*.

AMY DIALOGUE #2: Lunch

ADULT	LEARNER
It is time for lunch. Amy is seated in her wheelchair at the classroom table. The paraprofessional, Carol, has heated the food and placed a bowl of spaghetti and a bowl of pears on Amy's tray.	
	Amy *leans forward* in her chair, obviously interested in the food and *reaches* with her hand toward the bowl.
"Do you want to help me stir, Amy?" With her hand over Amy's hand, they stir the food together *[Movement]*. "Good, Amy." Carol ***pauses*** in their stirring and ***waits*** for a response from Amy *[Opportunities: time-delay]*.	
	Amy *smiles* and *looks toward* Carol .
"Oh, you like to help, don't you, Amy?" *[Sensitivity]*. They continue stirring together. Carol ***stops*** again and ***looks*** at Amy. "Ready to eat?" *[Opportunities: time-delay]*.	
	Amy *moves her hand* in the same direction as the previous stirring motion.
"Oh, more, Amy? OK" *[Sensitivity: responding]*. They continue a little longer until Amy's attention begins to drift. Then Carol picks up the bowl of spaghetti and moves it close to Amy's nose. "Hmm, good. Smell, Amy."	
	Amy *shifts her gaze* from the food and is attracted to the gleam of the ceiling lights.
Carol tries to redirect Amy's attention by ***moving closer*** to her and also ***looking up*** toward the lights. "You like those lights, don't you?" *[Sensitivity]*. She holds onto Amy's hand and ***gently squeezes*** it.	
	Amy *smiles* and *coos* and *looks at* Carol again.

Carol, still ***holding Amy's hand*** affectionately *[Nurturance]*, "Would you like to have a drink of juice, Amy?" she ***says***, ***tapping*** the pitcher of juice. *[Opportunities: choice]*

Amy ***looks*** at the juice pitcher briefly, but ***looks away*** again, seemingly uninterested.

Carol again redirects Amy's attention by ***shaking her hand*** *[Nurturance]*, saying, "It's lunch time, Amy. Do you want spaghetti or juice?" *[Opportunities: choice]*.

This time Amy ***looks directly*** at the spaghetti bowl and ***reaches*** for the spoon.

"Oh, you want to help me stir again. OK," *[Sensitivity]*.
They ***resume*** their hand-over-hand stirring ***motion*** *[Sequencing: routines]*.
Carol ***pauses*** in their stirring.

Amy ***looks up*** at Carol.

"Want a bite of spaghetti, now, Amy?" Carol asks, ***bringing a spoonful of food to Amy's mouth*** *[Sensitivity: choice]*.

Amy ***hesitates*** at first, and then ***opens her mouth***, taking a big bite.

Carol manages to get a few successful mouthfuls in Amy. "Good job, Amy!" *[Nurturance]*.

Suddenly Amy resists, keeping her ***mouth closed*** and ***turning away*** or ***biting the spoon*** when she does open her mouth.

"Amy, aren't you ready to eat more lunch?" Carol asks, withdrawing the spoon and again ***grabbing Amy's hand*** to gain her attention *[Nurturance]*.

Amy ***looks away***, distracted by other things in the classroom.

"Oh, you're not ready. OK. I'll come back in a minute," *[Sensitivity]*.
She sets the bowl down and starts to leave

"Oh, you would like a drink of juice" *[Sensitivity: responding]*.

Amy *vocalizes* and *moves her* hand toward her juice glass

Amy keeps her *attention* on Carol with her *arm slightly out-stretched* toward the juice glass.

Carol *moves the pitcher* of juice *closer* to Amy's hand *[Opportunities]*.

Amy *grabs* hold of the handle and *attempts to lift* the plastic pitcher.

"OK. Let's pour the juice together" *[Sensitivity]*. Carol *puts her hand over Amy's hand and they pick up the pitcher of juice and pour* some into Amy's cup *[Sequencing: patterns]*.

Amy is delighted to be pouring her own juice and she *coos* and *smiles* intermittently.

"Is this fun, Amy?" Carol says *[Nurturance]*.
"OK, your glass is full now," and Carol puts the pitcher out of the way and *waits* for a sign from Amy *[Opportunities: time-delay]*.

Amy *looks at* Carol, *makes a small sound*, and *reaches* toward her glass.

"Oh, you're ready for your juice!" *[Sensitivity: responding]*.

Carol helps her hold the cup as Amy drinks. Carol *puts the cup down* when Amy stops swallowing *[Sensitivity]*.

Amy *extends her hands* toward the bowl of food.

"Ready to eat, now?" as she guides the spoon to Amy's mouth.

Amy begins to eat, but *spits out a lot* in her bib.

Carol makes a game out of the feeding, using a *sing-song tune* and *holding Amy's hand* in a way that captures Amy's attention *[Nurturance]*.

Amy is *smiling* and *circling her hand*, holding onto Carol's hand. She still *spits out some of her food* and is less interested in eating and more interested in their hand movement.

"Amy, are you tired of your spaghetti? Would you like some of these pears instead?" Carol brings the pears close to Amy *[Opportunities: choice].*

Amy ***reaches out*** to touch the pears. She is obviously interested.

"Oh, I think you like these pears," *[Sensitivity]* Carol says as she directs a spoonful of pears to Amy's mouth.

This time Amy ***grabs*** onto the spoon and takes a big bite.

"Good Amy!" Carol says *[Nurturance]* and she continues to feed Amy the rest of the pears. "They're all gone now, Amy," and she lets Amy feel the bowl to see it is empty. "I'll get the trash can so we can clean up." Carol places the trash can close to Amy and ***waits*** *[Opportunities: time-delay].*

Amy ***looks up*** at Carol, but with no readable intent.

"Are you ready to clean up, Amy? Here is the trash can" and she begins to ***direct Amy's hand*** toward her paper cup and spoon, a motion Amy is familiar with *[Sequencing: routines].*

Amy helps ***put*** her cup and spoon away.

"Now where do your two bowls go, Amy?" Carol asks, holding her lunch sack close to Amy's reach *[Opportunities].*

Amy ***picks up*** her two bowls and puts them in the sack with some help from Carol. Then she ***smiles***, knowing she has done a good job.

"Good, Amy! Yes, I'm very proud of you" Carol says *[Nurturance].*
Carol brings out a small tub and washcloth.

Amy ***looks pleased.***

"Ready to wash your face?" and she brings the washcloth close to Amy's face and ***waits*** *[Opportunities: time-delay].*

Amy ***grabs*** the washcloth and ***tries to wipe her face*** almost on her own.

Then Carol brings out a hand towel to dry Amy's face.

"Oh, you want to play our game! OK," Carol says*[Sequencing: patterns in games]*. They ***imitate*** each other back and forth *[Movement]*, a game they often play together after meal time.

Amy playfully indicates a game of peek-a-boo, ***hiding behind the towel and smiling*** as ***she peeks out*** from behind it.

Amy *vocalizes* excitedly during the game and is quite ***animated***.

"That's your favorite part of clean-up, isn't it, Amy?" as she ***fondly kisses*** Amy *[Nurturance]* and ***wheels her over to the kitchen counter*** *[Sequencing: routines]*.

Amy ***places*** the washcloth and towel on the counter.

"Good job, Amy. I'll see you during free time," *[Nurturance]*.

Amy is in her wheelchair. It is time for her to get her physical therapy on the mat in the other end of the classroom. This page is provided so that you can write a short dialogue that utilizes the intervention guidelines as Amy greets her physical therapist, is taken out of her wheelchair, and then is rolled to the mat for her physical therapy.

Adult (Physical Therapist) _____ Amy _____

Description of Al and the purposes of his communication intervention

Al

Al is fifteen years old. He has a visual impairment and uses light vision. Al is severely retarded. Al is not motivated to complete tasks and needs coaxing to perform skills he is capable of.

Purposes for Al's communication intervention:

Developing Nurturance

Enhance Al's self esteem and the positive relationship he has with the teacher and paraprofessional in his classroom.

Enhancing Sensitivity

Recognize Al's nonsymbolic behaviors as effective communication.

Sequencing experiences

Utilize routines within daily events and instruction to provide Al with clear expectations for anticipating the next occurrence, thus increasing his involvement and motivation.

Increasing Opportunities

Facilitate Al's opportunities to communicate by: a) delaying assistance or removing materials or events in structured settings; and b) providing consistent time-delays (pauses) during interactions; and c) creating opportunities for Al to make choices.

Utilizing Movement

Utilize coactive activities to a) provide structured, pleasurable interactions for Al and the service provider; b) develop Al's concepts of spatial distance by decreasing direct physical contact; and c) expand the quality and frequency of Al's use of nonsymbolic signals.

Setting: Classroom in a regular public Junior High School. It is almost time for lunch.

AL DIALOGUE #1: Getting ready for lunch

ADULT	LEARNER
A bell rings to indicate the end of an activity period. The teacher announces to the class. "It's time to get ready for lunch."	
The teacher goes over to Al's desk and ***directs his hands*** from the elbow to feel the materials on his desk (a familiar cue for him), as she says, "Is your desk clean?" *[Sequencing experiences].* She helps him start cleaning his desk by initiating a familiar pattern of ***parallel movement*** *[Movement].*	
	No response.
As Al reaches slightly to pick up an object, the teacher keeps her arm parallel to his, ***maintaining contact*** with it. She keeps this light contact with his arm, ***mirroring*** and encouraging his movements as he cleans up his desk *[Movement].* This parallel movement cue continues for a few minutes. Then she moves away.	Al's ***pace quickens*** during the parallel movement cues and he ***smiles*** occasionally.
	Al continues to clean up his desk.
The teacher is praising students as they finish clean-up and get in line with their bathroom partners.	
"Good John, your desk is clean. What now?" *[Opportunities]*	
	Al stands up.
"Yes, go wait at the door for Michael" *[Sensitivity: responding].*	
She continues to verbally recognize students who are done and gives them permission to leave the room to wash their hands.	

The teacher returns to Al's desk, ***directs his hands*** from the elbow to feel across the desk surface. "Oh this is clean here. Is there anything left?" *[Opportunities]*
[The teacher's use of a description of the current task communicates positively the process he is involved in, rather than providing a direct command.]

Al has an object in his hand, smelling it.

Al *vocalizes* and picks up another object.

"Good Al, you're cleaning. ***Right on!***" *[Nurturance]*.

Al ***smiles*** as he hears his ***favorite expression***. Slowly he continues to clean his desk.

The teacher leaves, directing her attention elsewhere.

Paul, a classmate, who is Al's ***lunch partner*** comes up to Al's desk. "Ready, Al?" *[Sequencing: social awareness]*.

Al ***feels*** across the surface of his desk, finds one item and places it in his desk. Al ***stands up*** indicating he is ready.

Al holds on to Paul's elbow as they walk down the hall, enter the cafeteria and stand in the lunch line.

Al proceeds through the lunch line. The paraprofessional ***removes the spoons*** from their container just before Al reaches for one *[Opportunities: creating need]*.

Al reaches out to find a spoon, feels the empty container and starts to ***vocalize***.

The paraprofessional, Joan, says "What's wrong, Al?" *[Sensitivity: recognizing nonsymbolic behavior]*.

Al ***moves his hand*** toward the empty container.

Joan says, "Oh, you need some spoons. Here they are, Al"
[Sensitivity: Responding].

Al *vocalizes* again.

Later, when Al gets his tray of food, he stands silently.

Joan knows he is waiting for help to his table but ***waits*** near him without asking him*[Opportunities: time delay].*

Al ***turns around***, ***reaching out***, searching for Joan and makes a soft ***groan.***

Joan touches his arm, saying, "Do you need something, Al?"
[Sensitivity: recognizing nonsymbolic behavior].

Al ***leans forward*** slightly in the direction of the noisy lunch tables.

"Oh, You're ready to go to the lunch table *[Sensitivity: responding to nonsymbolic behaviors].*
Take my arm." Joan guides Al to the lunch table where his friends are.

Al eats his lunch with the other students, but remains seated after others have left to clean up.

After a few minutes Joan comes over tc Al's table, and ***stands quietly nearby*** *[Opportunities].*

Al, hearing Joan approach, turns towards her and then ***picks up his tray.***

"Oh, you're ready to put away your tray"
[Sensitivity: recognizing nonsymbolic behavior].

Al makes ***a soft sound*** and ***stands up.***

Together they walk side-by-side to the carts that contain used lunch trays and utensils.
In a coactive manner Joan and Al clean off their trays. When Joan sees Al reach for an item, she also reaches for the same item on her tray, *touching* the *side* of his *arm lightly* to *parallel* his *movement*. They put away every item into the appropriate container with Joan always following Al's lead and *paralleling* his *motions* *[Movement: coactive]*.

Al *smiles* occasionally as they participate in the movement together.

"Good job, Al," as Joan *squeezes* *his hand* affectionately *[Nurturance]*.
"I'll guide you to the hall now.

Al *smiles*.

AL DIALOGUE #2: Leisure Activity

ADULT	LEARNER
	Al has just finished an activity and has cleaned up his things by putting them away in a box that indicates he is finished with them. He reaches into a series of boxes that are arranged in a sequence that corresponds to the order of activities that he is involved in. He locates the empty boxes that indicate he has completed those activities and has already placed those objects in the 'finished container'.
	He locates ***the next object*** that ***indicates the activity that is to occur [Sequencing experiences]*** . He discovers an object that indicates free time (a book with special texture on the outside).
	He moves and locates his free time activity box by matching the texture of the special book object to the same texture that is on the outside of the activity box. He pulls some headphones out of the many items in his activity box, and ***reaches out*** to the teacher, Ann, ***extending the headphones toward her.***
Ann has been watching him and has waited for him to communicate his message.	
"Good, Al, nice job!" *[Nurturance]*.	
"You *chose* headphones" *[Sensitivity: recognizing nonsymbolic behaviors]*.	
	Al ***smiles*** and ***puts his hands over his ears*** (as if wearing headphones).
"I *like* music too" *[Sensitivity: responding to nonsymbolic behaviors]* Ann says as she puts the headphones on and snaps her fingers as if keeping time to the beat.	

Al ***smiles*** and ***nods his head***. He ***reaches*** toward the headphones Ann is wearing and ***gestures*** toward the tape recorders.

"Yes, music now would be fine. I'll help you to the music area" *[Sensitivity : responding to nonsymbolic behaviors]*.

Al excitedly ***waves his hands*** and ***vocalizes***, pleased at the idea of listening to music. He ***reaches out*** to Ann and ***places his hand*** on her arm.

Together they walk over to a counter where the tape recorders are located. They are standing by the counter where there are two different kinds of headphones in separate boxes. Ann ***guides his hands*** to both boxes. "Here's this kind of headphone. Here are some soft headphones, Al. Which do you want?" *[Opportunities: choice]*.

Al does not reach for either headphone box but ***turns toward*** some noise in the classroom.

Ann guides his hands again to the two boxes.

"Al, which headphones would you like to wear?" She prompts again, this time ***guiding his hand*** to one headphone and then the other, and ***pauses*** *[Opportunities: time-delay]*.

Al chooses the box with soft headphones, carefully feels all of them, and pulls one toward him.

Al waves his hands excitedly holding the headphone he has selected. In his excitement he bumps into a student who has approached near him at the counter. The other student, Jamie, seems to be interested in Al's activity with the teacher.

Al grabs Jamie's arms and ***extends the headphone*** he is holding ***toward Jamie***, indicating that he would like Jamie to join him.

Jamie is familiar with the idea of ***free time*** and ***listening to music*** and excitedly responds to Al, reaching for a headphone for himself *[Sequencing: increased social awareness]*.

Al attempts to put the headphones on, but is struggling with them. He ***grabs the teacher's hand, vocalizing*** to her.

"Do you need a little help, Al? *[Sensitivity: recognizing nonsymbolic behavior]* I can help you,"*[Sensitivity: responding to nonsymbolic behavior]* She helps him with the headphones, adjusting them to fit his head.

PEER

LEARNER

Jamie gets his headphones on. Together, Jamie and Al sit down by the table with the tape recorder. Jamie picks out a tape among many that have holders that are covered with material of different textures. He puts the tape in Al's hand.

Al knows the feel of these tapes *[Sequencing]* and at first rejects Jamie's choice by ***putting the tape back*** into Jamie's hand and ***vocalizing***.

Jamie puts the rejected tape back in the storage box and ***hands Al another tape*** that has a different texture on the outside of the tape holder *[Opportunities: choice]*.

Al agrees with Jamie's choice, ***nodding*** his head and ***pushing the tape back*** in Jamie's hand and then ***pulling Jamie's hand towards*** the tape recorder. This indicates he wants to play that tape.

The teacher stands nearby, keeping an eye on them in case they need any help, but Jamie is able to direct Al's hand to the tape recorder and together, hand-over-hand, they put the tape into the recorder.

Al *vocalizes* to Jamie and then he ***reaches for the button*** to turn on the recorder.

Jamie sees that Al needs help and brings Al's hand to the button. He ***waits*** for Al to press the button *[Opportunity: time delay]*.

After they listen to music for 15 minutes, a ***bell rings at the end of the free time*** activity which they both know signals the end of the period *[Sequencing]*. They know it is time to clean up.

Jamie ***stops the recorder*** and ***taps*** Al.

Al ***reaches*** for the tape and tries to get it out of the recorder, but ***struggles*** with it and ***vocalizes*** to Jamie.

Jamie helps him with the tape and puts it in its textured holder. He takes off his headphones, putting it into the correct container.

He ***taps Al's hand*** and brings it towards the two different containers *[Sequencing]*.

Al takes off his headphones. He feels into the two boxes to decide which one to put his headphones into. He places his headphones in the corresponding box.

Al holds onto Jamie's arm as they walk back to the sequenced boxes to check on what activity occurs next.

Al ***smiles*** and ***vocalizes***.

Description of Ed and the purposes of his communication intervention

Ed

Ed is ten years old and has a mild form of cerebral palsy and is severely retarded. Ed has limited use of his left arm and uses his left leg minimally. Sometimes he exhibits restricted coordination, especially while walking or running.

Developing Nurturance

Build on the warm and affectionate relationship Ed has with his teacher and physical therapist to encourage a positive atmosphere in the classroom and facilitate interchanges.

Enhancing Sensitivity

Recognize Ed's nonsymbolic behaviors as meaningful communication and respond appropriately.

Sequencing Experiences

Establish routines and games that are clear and consistent that will: a) involve Ed more fully in the daily activities and b) provide him with familiar patterns that encourage his participation with others, thus increasing social awareness.

Increasing Opportunities

Increase Ed's opportunity to communicate by: a) providing appropriate time-delays or pauses in their interactions; b) delaying assistance or removing materials to encourage an initiation from Ed, and c) providing opportunities for Ed to make choices.

Utilizing Movement

Utilize resonant, coactive, and imitative movement activities to: a) increase the quality and quantity of Ed's nonsymbolic behaviors; b) encourage greater use of his left arm and leg and c) encourage playful social interactions that Ed enjoys.

Setting: Classroom in a regular public grade school. It is time for the afternoon snack. It is Ed's turn to help get the table ready, placing paper plates and cups on the table. It is also his responsibility to help other students get their popcorn and juice poured.

ED DIALOGUE #1: Serving Snack

ADULT	LEARNER
The ***bell rings*** at the end of the last activity, informing the students that the ***activity is finished*** and it is time to get ready for snack. All the students know to go over to the refrigerator and see if their picture is posted on the door, which tells them if it is their turn to help *[Sequencing]*.	
	Ed sees his picture and *vocalizes* to the other students. He then goes over to Sue, the teacher, and ***touches her arm*** to tell her that he is ready to help.
"Good, Ed. You found your picture. You're right. It's your turn. *[Sensitivity: recognizing nonsymbolic behavior]*. "What next?" She ***pauses***, giving Ed an opportunity to respond *[Opportunities: time delay]*.	
	Ed answers her by ***gesturing toward*** the kitchen area and ***pulling her hand*** in that direction.
Together they walk over to where snack is prepared. Sue stands by the cabinet but does not say anything, giving Ed an opportunity to initiate his first task *[Opportunities: time-delay]*.	
	Ed ***opens the cabinet, reaches*** toward the plates and ***looks up at the teacher.***
"Oh, you chose to put the plates out first. That's fine, Ed." She smiles and nods at him *[Sensitivity: responding to nonsymbolic behaviors and Nurturance]*. She helps him as he gets a hold on the plates and brings them out of the cupboard.	
	Ed goes to the table and puts one plate at each student's place. When Ed finishes putting all the plates around the table, he goes back to the cupboard to get the cups. But he can't find them. He gets the teacher's attention by ***vocalizing and looking up at her.***

The teacher has purposefully removed the cups so that Ed would have to ask for them *[Opportunities]*.

"Ed, what do you want? "

Ed ***extends his open hand*** to the place in the cupboard where the cups are normally kept.

"Oh, the cups aren't there" *[Sensitivity: responding to nonsymbolic behaviors]*. "Where are cups?" They both look around at the counter, sink, and dishdrainer.

After a few seconds, Ed ***smiles*** and ***reaches toward*** the cups in the dishdrainer.

"Good, Ed, you found cups!" She pats his back *[Nurturance]*.
The other children start to sit down at the table so Ed knows it is time for him to help them get their popcorn and juice.

"Choose who you are going to serve first, Ed." *[Opportunities: choice]*.

Ed stands by one student, Pat, with two pitchers of juice. One is apple juice in a tan pitcher and one is grape juice in a purple pitcher. Ed asks Pat, by ***pointing***, which kind of juice he would like *[Opportunities: choice]*.

<u>Peer</u>
Pat picks the tan pitcher.

Ed is ready to pour the juice into his cup. He ***looks up at the teacher*** though before he does.

<u>Adult</u>
The teacher needs to help Ed and ***guides him*** to use both hands to handle pouring the juice. "Good job, Ed *[Nurturance]*. Serve your friends."

When Ed has finished serving all the students' juice he ***stands*** by Pat with the bag of popcorn.

Ed asks, ***"Onn ap?"*** as he ***taps the bag*** *[Opportunities: choice]*.

<u>Peer</u>
Pat ***nods*** his head and ***reaches*** for the bag.

When snack time is over each student must clean up their own place with the help of classroom aides.

Ed and another student, Jill, are responsible for wiping off the table. The teacher initiates a coactive movement activity with the two students by wiping off the tables in a ***side to side motion.*** She indicates to them to follow her motion. She moves away from the table and watches as they wipe the table side to side in the manner she did *[Movement: imitative].*

Ed finishes serving popcorn to all the students.

Ed and the other student move their cloths ***side to side*** as the teacher did. Ed ***smiles*** at Jill as they wipe the tables in time with each other's movements.

Suddenly, Ed ***stops his motion*** *[Opportunities and Sequencing: patterns in games]*

<u>Peer</u>
Jill, imitating Ed, ***stops her motion*** also and ***smiles*** back at Ed.

Ed starts ***wiping*** the table in an ***up and down*** motion, ***watching*** to see if Jill will follow.

Jill is familiar with this movement game. *[Sequencing: patterns in games].* She starts ***wiping*** the table with an ***up and down motion*** following Ed's lead.

Jill ***vocalizes*** to Ed.

When the table is clean, Ed and Jill put the cloths away and move on to their next activity.

ED DIALOGUE #2: Physical Therapy

ADULT	LEARNER
Ed and the physical therapist enter the gym walking side by side. The therapist initiates a coactive movement activity by ***walking close*** to him, ***swinging*** her arms in time with his. She tries to make sure he is swinging both his arms equally to encourage the use of his impaired arm *[Movement]*.	
A big three foot high ball is located close to a trampoline in the gym.	
"Would you like to play on the big ball or on the trampoline, Ed" *[Opportunities: choice]*.	
	Ed ***reaches toward*** the trampoline and ***looks*** back ***at her.***
The therapist ***smiles*** and ***nods***, "OK, trampoline" *[Sensitivity: responding to nonsymbolic behaviors]*.	
She ***waits*** to see if Ed will ask for help getting on the trampoline *[Opportunities: time delay]*.	
	He ***tries to get on*** the trampoline unsuccessfully and then ***looks at her, vocalizes*** and ***gestures.***
"Oh, want help, Ed?" *[Sensitivity: responding to nonsymbolic behaviors]* She helps Ed onto the trampoline and also gets on herself.	
They bounce softly together, while she ***encourages him*** to use his left arm and leg more, by having him imitate her arm movements *[Movement]*.	
When the therapist ***stops bouncing***, Ed stops his bouncing too, since he is imitating her and because the movement of the trampoline naturally slows down.	
Then she ***waits*** for a signal from him that he would like to keep bouncing or to stop *[Opportunities time-delay]*.	
	Ed ***vocalizes*** and ***waves his hands*** indicating that he would like to continue bouncing.

"Bounce more, Ed?" *[Sensitivity: responding to nonsymbolic behaviors]* and together they start the ***imitating game*** again, ***taking turns initiating the changes*** in their types of bounces *[Movement]*.

Ed ***sits down*** on the trampoline and bounces in a sitting position, ***smiling*** at the therapist.

The therapist, following his lead, also ***sits down*** and ***copies Ed's bounces*** *[Sensitivity: responding to nonsymbolic behavior]*.

"Good Ed, new bounce!" *[Nurturance]*.

The therapist ***pats both hands*** on the trampoline.

"Can you pat both hands on the trampoline?" she says, since he is favoring only using his left arm. She places her hands on his and together they pat the trampoline *[Movement]*.

Ed begins to lose interest in the patting game and ***does not respond*** when the therapist initiates changes in the patting game.

"Something new, Ed?" *[Sensitivity: responding]*

"Off trampoline, now? Let me help you." *[Sensitivity: responding to nonsymbolic behaviors]*. She helps Ed use both of his hands appropriately in getting off.

Ed is now ***looking at the big ball*** that is near the trampoline. He ***extends his hand*** toward the ball showing some ***excitement in his face.***

The therapist puts her ***arm around his waist*** and ***waits*** for a signal from Ed that he would like to roll forward *[Opportunities: time-delay]*.

Ed ***goes*** over to the big ball that is about 3 feet in diameter. He ***leans*** his stomach up against it.

"Oh, you are ready to roll forward, Ed?" she asks as Ed lays on the ball. She slowly rolls the ball forward until his hands can touch the floor *[Sensitivity: responding to nonsymbolic behaviors]*.

Ed is familiar with this routine and ***looks up*** at the therapist (establishes eye contact), and ***smiles*** *[Sequencing: patterns in games]*.

She rolls the ball back and forth a few times.

"Do you like to roll?" *[Nurturance]*

Ed knows he can *push off* the floor with his hands to continue rolling back and forth on the ball. He does this while *smiling* and *vocalizing*.

Ed *smiles* broadly.

Then the therapist allows the ball to roll back so that his feet are touching the floor. She ***stops this movement*** and she ***moves her arm*** up to his shoulder, giving him an opportunity to signal to her to continue or to stop *[Opportunities: time-delay]*

Ed *turns around* slightly, *taps her hand*, and *establishes eye contact.*

"Roll again more!" *[Sensitivity: responding to nonsymbolic behaviors]*. She moves her arm back down to his waist and helps him roll forward on the ball until his hands are touching the floor again. They continue this sequence of rolling back and forth and she gives Ed ***many opportunities to signal*** for more by stopping the motion from time to time. *[Opportunities: time delay & Sequencing: patterns in games]*.

After a while Ed ***no longer signals*** to continue.

The therapist ***stops*** the motion, ***waits*** and says "Stop now, Ed?" *[Opportunities: time delay & Sequencing: routines]*.

He makes ***no response.***

"Stop now, Ed?" She prompts again and ***pauses***, with her hand at his shoulder *[Opportunities: time-delay]*.

This time he ***looks at her*** and indicates that he's ready to stand by ***moving his body*** so that most of his weight is on his feet.

"OK, that was a good session*[Sensitivity: responding to nonsymbolic behaviors]*. Help roll the ball?"

Ed indicates he is ready to push by ***leaning on the ball*** and ***looking*** back at the therapist.

"Good, you're ready" *[Nurturance]*.

"Go!"

Together they push the ball to the wall *[Movement & Sequencing]*.

Ed *initiates* a game of *patting* the ball, *pausing* and then beginning to *push* the ball again.

The therapist *imitates* this movement and *sings* as she times her patting and pushing to Ed's rhythm *[Nurturance & Sequencing: patterns in games]*.

Ed is *smiling* and *vocalizing* intermittently during their game

The therapist *stops* suddenly and looks at Ed, giving him an opportunity to indicate if he wants to continue or to stop *[Opportunities: time delay]*.

Ed *pats* the ball hard in response, *smiles*; and *initiates the game again*. Suddenly Ed gives the ball a *fast push*.

The therapist *imitates* this quick, fast push *[Nurturance & Sensitivity]*. They quickly push the ball into the proper place.

The therapist *claps his hand* as she says good-bye *[Nurturance]*.

Ed *smiles* and returns to his classroom.

Write a meal-time dialogue for an individual that you know or work with who is severely disabled and nonsymbolic.

Communication purposes:
Developing Nurturance

Enhancing Sensitivity

Sequencing Experiences

Increasing Opportunities

Utilizing Movement

Adult _____ Learner _____

GLOSSARY

COMMUNICATION: A social interaction that exchanges information, ideas, desires, requests, and questions. The transmission and reception of the message may use symbolic behaviors (spoken word, written word, sign language, Blissymbolics) or nonsymbolic behaviors (facial expression, body movement, touch, gesture).

EXPRESSIVE COMMUNICATION: Conveying, sending, or transmitting a message through symbolic or nonsymbolic means.

FUNCTIONALITY: The integration of useful and relevant communication training that is directly applicable to the individual's daily life situation.

INTENTIONAL COMMUNICATION: An expression that is planned, deliberate, and purposeful.

LANGUAGE: Communication by the use of a learned, arbitrary symbolic system. There are rules that govern the order and sequence of the symbols of any language. [see symbolic]

MOVEMENT: An intervention procedure referring to part of the Van Dijk theory of adult and child participating in reciprocal exchanges through the mutual physical movements of their bodies. The use of movement encourages communication by developing the individual's: a) awareness of self, b) separation of self from the environment; and c) recognition of others as responsive, social partners.

NATURAL CONTEXT: The use of naturally arising events within an every day setting to integrate comunication training that is appropriate and relevant to the needs of the individual.

NONINTENTIONAL ACT: Any behavior performed without intention, plan, or purpose.

NONINTENTIONAL COMMUNICATION: Expressing a nonintentional act that is not planned, deliberate, or purposeful but is interpreted as a communicative message.

NONSYMBOLIC: The use of gesture, facial expression, body movement, eye gaze, vocal sounds, and other expressions that are not part of symbolic systems.

NURTURANCE: Emotional warmth and caring that fosters a supportive atmosphere. Nurturance helps to create a positive relationship that promotes interest in communicative interactions, and ensures a willingness to participate in social exchange.

OPPORTUNITY: A favorable situation for communicative exchanges to occur that encourages involvement, participation, and a reason to communicate.

RECEPTIVE COMMUNICATION: The process of receiving, getting, or acquiring a message.

RECIPROCAL INTERACTION: Communication which involves mutual exchanges between two people as they alternate between giving and receiving communicative messages.

RESPONSIVENESS: The ability to percieve and interpret nonsymbolic behaviors in a sensitive fashion that is appropriate and satisfying to the individual who uses nonsymbolic communication. Responsiveness facilitates early communicative behavior by promoting an awareness of another person as an important agent in social interactions.

SENSITIVITY: An acute awareness of the needs and emotions of others, involving high responsivity to the subtle cues of others. Nonsymbolic communication is facilitated when sensitivity is used to perceive and interpret these behaviors.

SEQUENCE: A related, continuous series of activities, using an organized framework that establishes regularized formats. Utilizing ordered sequences increases the individual's familiarity with interactions, which facilitates communication by promoting active participation in social exchanges.

SYMBOLIC: The use of abstract or conventional signs that represent elements, relations, or qualities. Examples of symbols are written words, spoken words, sign language, Blissymbolics, and braille.

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